# TCD-D7/D7K

## SERVICE MANUAL

**DAT**
Digital Audio Tape

## WALKMAN

### SPECIFICATIONS

| Model Name Using Similar Mechanism | TCD-D3 |
|---|---|
| Tape Transport Mechanism Type | MT-D7-47 |

| | |
|---|---|
| Tape | Digital audio tape |
| Recording time | Standard: 120 minutes |
| | Long-play mode: 240 minutes |
| | (with DT-120) |
| Sampling frequency | 48 kHz, 44.1 kHz, 32 kHz |
| Frequency response | Standard: Fs 48 kHz  20 – 22,000 Hz (±1.0 dB) |
| | Fs 44.1 kHz  20 – 20,000 Hz (±1.0 dB) |
| | Fs 32 kHz  20 – 14,500 Hz (±1.0 dB) |
| | Long-play mode: Fs 32 kHz  20 – 14,500 Hz (±1.0 dB) |
| Signal to noise ratio | Standard: more than 90 dB |
| | Long-play mode: more than 90 dB |
| | (1 kHz IHF-A, 22 kHz LPF, LINE IN) |
| Dynamic range | Standard: more than 90 dB |
| | Long-play mode: more than 90 dB |
| | (1 kHz IHF-A, 22 kHz LPF, LINE IN) |
| Total harmonic distortion | Standard: less than 0.008% (1 kHz, 22 kHz LPF, LINE IN) |
| | Long-play mode: less than 0.09% (1 kHz, 22 kHz LPF, LINE IN) |
| Wow and flutter | Below measurable limit (less than ±0.001% W.PEAK) |

**Input**

| | Jack type | Impedance | Rated input level | Minimum input level |
|---|---|---|---|---|
| MIC | stereo minijack | 4.7 kΩ | – | 0.4 mV |
| LINE IN | stereo minijack | 47 kΩ | 500 mV | 80 mV |

**Output**

| | Jack type | Impedance | Rated output | Maximum output level | Load impedance |
|---|---|---|---|---|---|
| PHONES/ LINE OUT | stereo minijack | 27 Ω | LINE OUT 500 mV | PHONES 5 mW + 5 mW | LINE OUT more than 10 kΩ PHONES 32 Ω |

**Input/output**

DIGITAL I/O • REMOTE jack (special jack)

Digital input/output, remote control operation and timer-activated operation is possible by connection with an adaptor kit to this jack.

Power requirements • DC 6 V four LR6 (size AA) batteries
• DC IN 6V jack accepts:
the Sony AC power adaptor (supplied to the AEP, Tourist model only) for use on

| | Operating voltage |
|---|---|
| US, Canadian model | 120V AC, 60Hz |
| AEP model | 220—230V AC, 50Hz |
| German model | 120V AC, 60Hz or 220V AC, 50Hz |
| Tourist model | 100—240V AC, 50/60Hz |

the car battery cord DCC-E160L (not supplied) for use with 12 V car battery.

Battery life (Approximately hours)

| | Playback | Recording |
|---|---|---|
| Sony alkaline AM3 (N) | 3.5 | 4 (3*) |
| Sony NC-AA | 2 | 2 (1.5*) |

* while monitoring with the headphones

| | |
|---|---|
| Power consumption | 1.2 W |
| Dimension | Approx. 132.6 × 36.7 × 88.2 mm (5¼ × 1½ × 3½ in.) (w/h/d) not incl. projecting parts and controls |
| Mass | Approx. 500 g (1 lb. 1oz.) incl. batteries |

**Accessories supplied**
Carrying case (1)
AC power adaptor AC-E60L (1) (AEP model only)

**For the Tourist model only**
Carrying case (1)
LR6 (size AA) batteries (4)
AC power adaptor AC-E60AM (1)
Plug adaptor (1)
Audio connecting cords (2)
(2 phono plugs ↔ stereo-mini plug, stereo for line inputs and outputs)
Digital cable POC-DA12 (1)
(special plug ↔ 2 optical plugs)
Remote commander RMT-D7 (1)
Cleaning cassette DT-10CL (1)

For the operation of the AC power adaptor and the remote commander, refer to each operating instructions manual.

Design and specifications subject to change without notice.

## DIGITAL AUDIO TAPE-CORDER

## SONY®

使用時は添付資料も参照のこと
Refer to the additional documents

# Features

### Easy operation with excellent sound quality of DAT
Superb quality recording and playback with excellent frequency response, remarkably low noise and lack of distortion can be made. High speed fast-forwarding/rewinding and cuing/reviewing for easy tape access.

### Long play (LP) mode recording
A maximum of four-hour continuous recording is possible using four LR6 (size AA) alkaline batteries which is ideal for recording a meeting or a conference etc.

### Adjustable (automatic/manual) recording level
The recording level can be adjusted either manually or automatically to suit every recording situation.

### Date function
The date and time are automatically registered at the time of the recording and can be displayed during playback, fast-forwarding/rewinding and cuing/reviewing.

### LCD display
LCD display window for indicating the current operational mode and the battery power status etc.

### Compact design
A compact mechanism and design for portability.

### Recording compatibility
Recording can be made from various digital audio equipment such as a CD (compact disc)/MiniDisc player or a BS (broadcasting satellite)/CS (communication satellite) tuner etc.
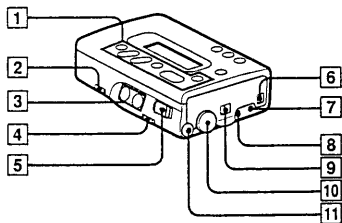
## TABLE OF CONTENTS

# SECTION 1
# GENERAL

## Location and Function of Controls



Refer to the pages in ● for details.

1 **Tape operation buttons:**
I◀◀/◀◀ (rewind/review • AMS) button ⑲
■ STOP button ⑮⑱
▶ PLAY button ⑱
▶▶/▶▶I (fast-forward/cue • AMS) button ⑲
REC (record)/ID WRITE (start ID write) button ⑮㉑
II PAUSE button ⑲⑬

2 **SP/LP (standard play/long play mode select) button** ⑭

3 **VOLUME buttons** ⑱

4 **PHONES, AVLS/LINE OUT (headphones, automatic volume limiter system/line out select) switch** ⑲㉒

5 **HOLD/PUSH OPEN switch** ⑩
Slide this switch to the HOLD position to avoid any accidental operation while the unit is set in a particular operational mode.
The use of this switch is recommended whenever you record or play back a tape.
However, the display modes can still be changed by pressing the CLOCK/SET button, the COUNTER/– button or the RESET/+ button even when the unit is in the hold mode.

6 **MIC SENS (microphone sensitivity) switch** ⑬

7 **MIC (microphone) jack** ⑫

8 **LINE IN (line input) jack** ⑫

9 **REC MODE (recording mode) switch** ⑬

10 **REC LEVEL (recording level) knob** ⑮

11 **PHONES/LINE OUT (headphones/line output) jack** ⑰
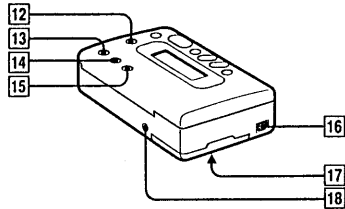


12 **LIGHT button**
Press to illuminate the display window when using the unit in the dark.

13 **RESET/+ button** ⑲㉔

14 **COUNTER/– button** ⑲㉔

15 **CLOCK/SET button** ⑲㉔

16 **DIGITAL I/O • REMOTE (digital input/output • remote) jack** ⑫⑰
Connect equipment with digital inputs/outputs using the connecting cord POC-DA12* or RK-DA10 (not supplied), the adaptor kit RM-D3K, or the remote controller RMT-D7* etc.

17 **Battery compartment door**

18 **DC IN 6V (external power input) jack** ⑨

* Supplied only to the Sony world model

## Display Window



19 **LP (long play) mode indicator** ⑬

20 **PGM.NO (program number) • day • AM/PM indicator** ⑲㉔

21 **START-ID indicator** ㉑

22 **Tape counter/clock/message indicator**

23 **REC (recording) indicator**

24 **▶ (playback) indicator**

25 **II (pause) indicator**

26 **BATT (remaining battery power status) indicator** ⑧

27 **AUTO-ID (automatic ID signal) indicator** ㉑

28 **Moisture condensation indicator** ❹

29 **Peak level indicators** ⑮

## Power Sources

### Using with Batteries

Use four LR6 (size AA) alkaline batteries.

**1** Open the battery compartment door.
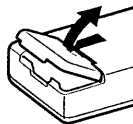


**2** Pull out the battery case by holding the small knob.



Knob
(Δ PULL)
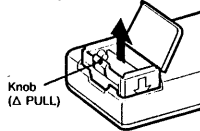
**3** Insert the batteries into the battery case. Make sure that the – side of a battery is always inserted first.

Four LR6 (size AA) alkaline batteries
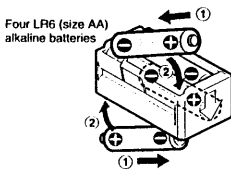


**4** Insert the battery case into the unit.
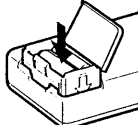


**Remaining battery power status**
The indicator constantly shows the remaining battery power status.
This display comes on while the unit is being used with the batteries. They do not come on when the external power source is used.
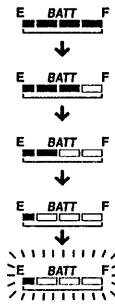


Replace the batteries at this point. If you continue to use the unit beyond this point, eventually the "bATTEPY" message will come on the display window and the unit will cease to operate.

**Notes**
• This unit is not equipped with a power switch. Consequently, as long as the batteries are inserted, the LCD display will always be turned on. However, the consumption of the electric current will be very small and negligible.
• Do not leave the unit with its battery compartment door open for a long period of time, as doing so may cause the batteries to wear more quickly.

**Notes on batteries**
• Insert four LR6 (size AA) alkaline batteries by matching the + and – on the batteries to the + and – in the battery case.
• Do not attempt to recharge the batteries.
• Do not use old batteries with new ones or different types of batteries together.
• When the unit is not to be used for an extended period of time, remove the batteries.
• If the electrolyte inside the battery should leak, wipe the contaminated area of the battery case with a cloth and replace the old batteries with new ones.
• Use only the alkaline batteries.
  Do not use any other type of dry batteries.

**Note on separately sold rechargeable batteries**
You can use the separately sold rechargeable batteries. However the expected recording/playback time will be shortened considerably.

**Using with the AC power adaptor**
Connect either the AC power adaptor AC-E60L** (not supplied) or AC-E60AM* (world wide) (not supplied) to the DC IN 6V jack of the unit.

**Note**
Use only the AC-E60L or AC-E60AM* AC power adaptor (not supplied). Do not use any other AC power adaptor.

Polarity of the plug
**Except for the AEP model
*Except for the Tourist model

**Using the power source of your car**
Use the car battery cord DCC-E160L(not supplied).

# Setting the Clock

The unit automatically registers the date of recording (year/month/date/day/hour/minute/second) at the time of recording. The date of recording can be then displayed on the display window while the unit is playing back, fast-forwarding/rewinding or cueing/reviewing a tape (Date function). **It is essential to set the clock before any recordings are made.** Otherwise, the date function will not work properly and the correct date and time of a recording will not be registered on the tape.
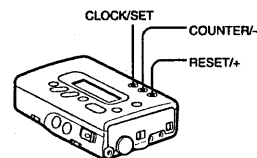
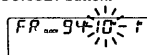Proceed with the following steps **while the unit is in the stop mode.**

CLOCK/SET
COUNTER/–
RESET/+

**1** Press the CLOCK/SET button for more than four seconds.

**2** Press the COUNTER/– and RESET/+ buttons to set the year digits, then press the CLOCK/SET button.

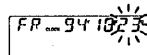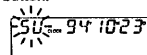**3** Press the COUNTER/– and RESET/+ buttons to set the month digits, then press the CLOCK/SET button.

**4** Press the COUNTER/– and RESET/+ buttons to set the date digits, then press the CLOCK/SET button.

**5** Press the COUNTER/– and RESET/+ buttons to set the day, then press the CLOCK/SET button.

**6** Repeat steps 2 to 4 to set the correct current time (hour/minute/second).
The second digits change to "00" when the COUNTER/– or RESET/+ button is pressed. Therefore, synchronize the clock by pressing either – or + button with the radio time-signal etc.
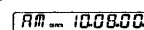
The flashing will stop and the clock will start activating.

**To cancel the procedure**
Press one of the following buttons: ▶PLAY, ■STOP, I◀◀/◀◀ or ▶▶/▶▶I while proceeding with the steps.
However, if you have proceeded to step 6, the year, month, day and date will be set.

**To select either the 12-hour or the 24-hour clock display**
Press the RESET button for more than two seconds.

**Notes**
• If the HOLD/PUSH OPEN switch is set to the HOLD position, you cannot set the clock.
• If you leave the unit for more than an hour without any batteries installed, the clock display will return to any original factory-set setting(9ʒ ʳ t/AM 12.00.00 ). In this case, reset the clock after inserting the batteries.

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# Inserting a Cassette

**1** Slide the HOLD/PUSH OPEN switch to the OPEN position.

HOLD/PUSH OPEN
While pressing
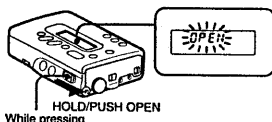
**2** Open the cassette compartment door.

**3** Insert a cassette with the window facing upward.
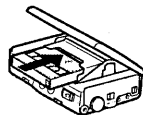
**4** Close the cassette compartment door.
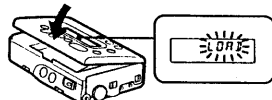
The cassette will be loaded automatically.

**Notes**
• When disconnecting the unit from the power source, make sure that the cassette compartment door is closed. Otherwise, you may not be able to close it afterward. If this happens, re-connect the power source.
• When inserting a cassette, make sure that the side with which the tape is visible inside is facing upward. If you inset the cassette upside down, you may not be able to take the cassette out.

**To eject the cassette**
While the unit is in the stop mode, slide the HOLD/PUSH OPEN switch to the OPEN position.

HOLD/PUSH OPEN
While pressing
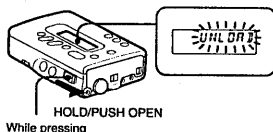
**Record-protect shutter**
Slide the record-protect shutter to the left to protect a recorded tape from being accidentally erased by recording on the tape for the second time.
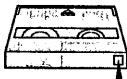
⊟ If the shutter is open, you cannot record on the tape.

⊡ If the shutter is closed, you can record on the tape.

# Recording

## Connection with Other Equipments

**Recording with a microphone**

Microphone (not supplied)

TCD-D7

to MIC jack
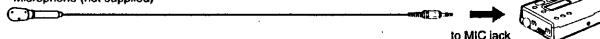
The PLUG-IN POWER type microphones can be used as well.

**Notes**
• In this connection example, you need to adjust the recording level. See page 16 for details.
• You cannot use an auto-power-supply type microphone such as the electret condenser stereo microphone ECM-S220 etc. with this unit.

**Recording from a stereo set or a radio/cassette recorder etc. (analog connection)**
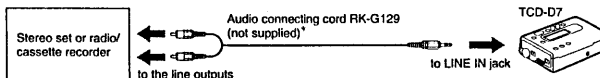
Stereo set or radio/cassette recorder

Audio connecting cord RK-G129 (not supplied)*

to the line outputs

TCD-D7

to LINE IN jack

**Notes**
• In this connection example, you need to adjust the recording level . See page 16 for details.
• If a microphone is connected as well, the microphone connection will override the line connection.

**Recording from equipment with digital outputs (digital connection)**
There are two types of digital output connectors: the optical type and the coaxial type.

CD player
BS tuner
DAT deck
etc.

Optical cable POC-DA12 (not supplied)*
to (OPTICAL) digital output

or

Set the switch to DIGITAL.

TCD-D7

Coaxial cable RK-DA10 (not supplied)
to (COAXIAL) digital output

to DIGITAL I/O • REMOTE jack
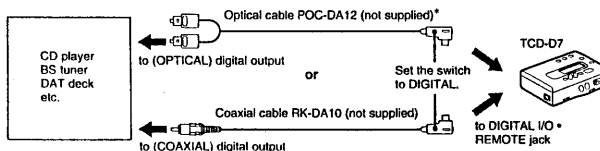
**Notes**
• In this connection example, you cannot adjust the recording level. The recording will be carried out at the same level as the source sound.
• Make sure that the switch on the connecting cable is set to the DIGITAL position before you start recording.

* Except for the Sony world model

11  12

—4—

**The adaptor kit RM-D3K (not supplied)**
This kit is equipped with the input/output connectors for both the optical cable and the coaxial cable. Therefore, you can use this kit as a relay between the TCD-D7 and another digital equipment. You can also remote control the TCD-D7 with the remote controller supplied to the RM-D3K. The timer operated recording or playback can be performed by adding an optional audio timer. See the operating instructions of the RM-D3K for details.

**Note**
If you intend to use the RM-D3K, use the AC power adaptor (not supplied)* for the power source of the TCD-D7.

*Except for the Tourist model
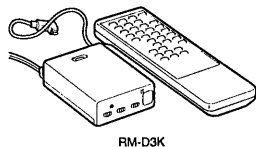
RM-D3K

## Before Recording

Use the following switches according to your needs.

MIC SENS

SP/LP    REC MODE
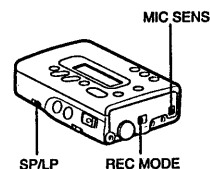
◆ **SP/LP switch**
SP: When the recording is to be made in the standard play mode. (The recording quality will be better with this mode.)
LP: When the recording is to be made in the long play mode.

**LP mode**
The recording time varies with the type of DAT cassette you use. See the chart below.

|  | SP mode | LP mode |
|---|---|---|
| DT-120 | 2 hours | 4 hours |
| DT-90 | 1.5 hours | 3 hours |
| DT-60 | 1 hour | 2 hours |

**Notes**
• If the sampling frequency (see page 20) of the digital input is either 44.1 kHz or 48 kHz while recording via the digital connection, the LP mode recording cannot be made even if you select the LP position with the SP/LP switch.
• You cannot play back a tape recorded in the LP mode on another DAT deck which is not equipped with the LP mode function.
• If you play back a tape, whose recording speed has been changed halfway from the SP mode to the LP mode, on a DAT deck which is not equipped with the LP mode function, you may experience some loud noise where the recording speed changes. In such a case, turn down the volume.

**The tape counter display while the LP mode is used**
The absolute time (see page 16) and the remaining tape time are based on the SP mode. Therefore, the actual time will be twice the amount of what is being shown on the display window.

◆ **MIC SENS switch (for recording with a microphone)**
H: Normally set the switch to this position.
L: When recording relatively loud sound (the built-in 20 dB attenuator will be activated).

◆ **REC MODE switch**
(When another equipment such as a microphone or a stereo set is connected to either the MIC or the LINE IN jack of the unit.)
MANUAL: When adjusting the recording level manually.
The recorded sound will become more faithful to the source sound. See page 16 for more details about adjusting the recording level.
MUSIC: When recording music.(The adjustment of the recording level will be made automatically.)
SPEECH: When recording a meeting or a conference etc. (The adjustment of the recording level will be made automatically.)

**To confirm the source of input**
Press the REC button twice while the unit is in the stop mode, or if the unit is in the recording or pause mode, press the REC button once. One of the following indications will come on for approx. one second:
*MIC in, LINE in, DIGITAL.*
These indications come on when the source of input has been changed as well.

## To Record

■STOP  ►PLAY  IIPAUSE

PHONES, AVLS/   REC   REC LEVEL
LINE OUT
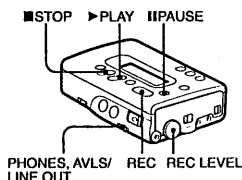
**1** Insert a DAT cassette. (See page 11.)

**2** Press the REC button and the II PAUSE button.
The unit enters the pause mode.
• When recording via a microphone or the analog connection, adjust the recording level with the REC LEVEL knob (Recording monitor mode) (see page 16).
• When recording from another equipment, engage the source equipment in the playback mode.

**3** Press either the ►PLAY or the II PAUSE button.
The recording starts.

**Notes**
• The recording cannot be started by just pressing the REC button.
• You cannot adjust the output level of the LINE OUT jack of this unit.
• Care must be taken if disconnecting a plug from the PHONES/LINE OUT jack while recording, as doing so may cause some noise to be recorded.

**To stop recording**
Press the ■ STOP button.

**To pause recording momentarily**
Press the II PAUSE button.
To cancel the pause mode, press the II PAUSE button again or press the ►PLAY button.

**Notes**
• If the unit is left in the pause mode for more than five minutes, the unit will automatically enter the stop mode in order to protect its head and the tape.
• If the unit is left in the stop mode for more than 10 minutes, the unit will automatically disengage the tape from the built-in mechanism. The illumination of the display window will go out at the same time.

**To monitor the sound while recording**
Plug in the headphones (not supplied) or an active speaker system (not supplied) to the PHONES/LINE OUT jack of the unit.
If the headphones are to be used, set the PHONES, AVLS/LINE OUT switch to either the AVLS ON or AVLS OFF position.
If the active speakers are to be used, set the PHONES, AVLS/LINE OUT switch to the LINE OUT position. (You cannot control the volume with the unit.)

**Notes**
• If headphones are connected to the PHONES/LINE OUT jack of the unit, do not change the position of the PHONES, AVLS/LINE OUT switch to the LINE OUT position. (If you wish to do so, make sure that the headphones are unplugged first.) However, you can set the switch to either AVLS ON or AVLS OFF position.
• There may be cases where you experience some noise while monitoring the sound while recording via the digital connection.

## Notes on Recording

**Do not leave any unrecorded parts on a DAT tape**
If there is a blank (unrecorded) part left on a DAT tape, the absolute time* will not be written thereafter. Also, when the tape is being fast-forwarded or rewound, it will stop at that point. In order not to leave any unrecorded parts on a tape while recording, observe the following:
— If you intend to continue to record on a tape which is partially recorded, make sure that you find the end of the previous recording first, then start the new recording from that point without leaving any unrecorded gap. (If you fast-forward the tape, it should automatically stop where the previous recording has ended.)
— If you wish to leave some blank parts, do not forward the tape with the ►PLAY button or the ►►/►►I button. Keep the unit in the recording mode but without any input sound.

* The absolute time indicates the elapsed time from the beginning of the tape and the current position of the tape which is written digitally. The absolute time will be automatically written when you record a DAT tape for the very first time and cannot be erased once written.

**Note**
In some cases, the absolute time may not be written if you re-record on the tape on which the absolute time has not been written originally.

**When you record to the end of a DAT tape**
The tape automatically rewinds to the beginning and will stop there. (Auto-rewind function)

## To Record Successfully

**To adjust the recording level**
Slide the REC MODE switch to the MANUAL position.
Rotate the REC LEVEL knob so that the peak level indicators on the display window flicker at around level ⑫. However, make sure that the level indicators do not go over the 0 dB mark when the peak sound level is recorded.

REC MODE
REC LEVEL
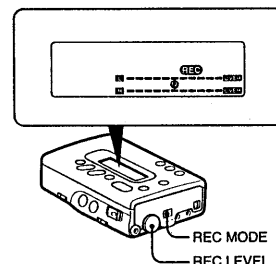
**When the OVER indicator(s) flicker(s)**
The recording level is set too high. Lower the level in order to avoid the recorded sound from becoming distorted.

**When recording relatively low sound**
Lower the recording level and move the microphone as close as possible to the source. You should be able to make a clear recording with the least amount of noise.

**Selecting a microphone best suited to the recording situation**
The recording characteristics are affected by the type of microphone you use. For a high quality recording, use the ECM-959A (not supplied) or the ECM-737 (not supplied).

# Playback

**Playback with stereo earphones**



to PHONES/LINE OUT jack
Set the PHONES, AVLS/LINE OUT switch to the PHONES, AVLS position.*¹

TCD-D7

**Playback with a connected stereo set or radio/cassette recorder etc. (analog connection)**



Stereo set Radio/cassette recorder etc.

Audio connecting cord RK-G129 (not supplied)*²

to LINE inputs
to PHONES/LINE OUT jack
Set the PHONES, AVLS/LINE OUT switch to the LINE OUT position.*¹

TCD-D7
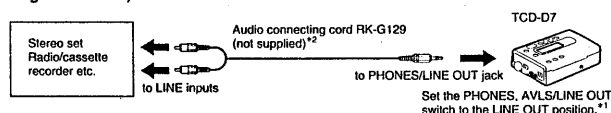
**Playback with a connected equipment with digital input connectors (digital connection)**
There are two types of digital input terminals: the optical type and the coaxial type.



DAT deck
Digital amplifier etc.

Optical connecting cable POC-DA12 (not supplied)*²

to (OPTICAL) digital input

or

to (OPTICAL) digital input

to (COAXIAL) digital input     Adaptor kit RM-D3K (not supplied)

TCD-D7

to DIGITAL I/O • REMOTE jack
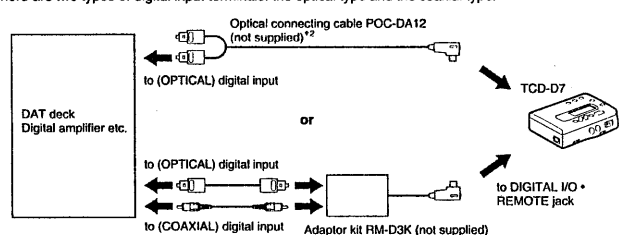
*1 When selecting other positions, make sure that the headphones, connecting cord etc. is unplugged from the PHONES/LINE OUT jack of the unit.
*2 Except for the Sony world model

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## To Play back



I◄◄/◄◄   ►PLAY   ►►/►►I   IIPAUSE

■STOP   VOLUME
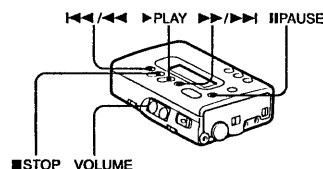
**1** Insert a DAT cassette. (See page 11.)

**2** Press the ► PLAY button.
Playback starts. The SP mode or the LP mode will be detected automatically, therefore, you do not have to adjust the SP/LP switch.

**3** Adjust the volume with the VOLUME buttons.
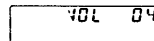


**Note**
You cannot adjust the output level of the LINE OUT jack of this unit.

**To stop playback**
Press the ■STOP button.

**To pause playback momentarily**
Press the II PAUSE button.
To cancel the mode, press either the II PAUSE button or the ►PLAY button.

**Notes**
• If the unit is left in the pause mode for more than five minutes, the unit will automatically enter the stop mode in order to protect its head and the tape.
• If the unit is left in the stop mode for more than 10 minutes, the unit will automatically disengage the tape from the built-in mechanism. The illumination of the display window will go out at the same time.

**To fast-forward the tape**
Press the ►►/►►I button when the unit is in the stop mode.

**To rewind the tape**
Press the I◄◄/◄◄ button when the unit is in the stop mode.

**When a tape is played back to the end**
The tape will be rewound to the beginning automatically and the unit enters the stop mode. (Auto-rewind function)

---

**To fast-forward or rewind while monitoring the sound — cue/review**

| To cue | Keep ►►/►►I pressed during playback. | The tape is fast-forwarded/rewound while the button is held pressed. When you release the button, the unit goes back the normal playback mode. |
|---|---|---|
| To review | Keep I◄◄/◄◄ pressed during playback. | |

If you press the ► PLAY button and the ►►/►►I button or the I◄◄/◄◄ button during playback, the unit enters the high speed cue/review.

**Locating the beginning of a program (track) — AMS* function**
Press either the ►►/►►I or I◄◄/◄◄ button quickly once during playback. If the unit is in the fast-forward/rewind mode, press either the ►►/►►I or I◄◄/◄◄ button once. Or if the unit is in the stop mode, press either the ►►/►►I or I◄◄/◄◄ button twice.

| To locate the beginning of the succeeding program (track) | Press ►►/►►I the same number of times as the programs (tracks) to be skipped. |  E.g.: to locate the beginning of the fifth program (track) |
|---|---|---|
| To locate the beginning of the previous program (track) | Press I◄◄/◄◄ the same number of times as the programs (tracks) (including the currently played one) to be skipped. |  E.g.: to locate the beginning of the fourth program (track) including the currently played one |

* Automatic Music Sensor

**Note**
The AMS function may not work properly if the start IDs are not registered on the tape or if the tape is recorded on another DAT deck. (See page 21.)

**The AMS indication during fast-forward or rewind**
The peak level indicators (L/R) show the tape transport direction and the remaining amount of tape to be wound.
L indicator: tape transport direction
R indicator: remaining amount of tape to be wound

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I◄◄/◄◄   ►PLAY

PHONES, AVLS/ LINE OUT
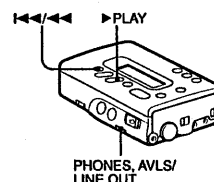
**To listen to a tape with headphones with a more comfortable sound pressure level — AVLS* function**
When playing back a tape, set the switch to either the AVLS ON or the AVLS OFF position.
AVLS ON:  Controls the sound pressure without degrading the sound quality when the volume is turned up. (Only when the headphones are used)
AVLS OFF: Normal sound reproduction

* The AVLS (Automatic Volume Limiter System) function automatically limits the sound pressure so that it will not exceed a certain level without degrading the sound quality, even if you attempt to turn the volume up higher. It also helps to reduce the sound leakage from your headphones.

**Note**
The reproduced sound may be distorted or unstable due to the type of music (with enhanced bass) being played back. If this happens, turn the volume down.

**To listen to a tape from the beginning after it has been rewound — Auto-play function**
While pressing down the I◄◄/◄◄ button, press the ►PLAY button. When the tape is rewound to the beginning, the playback starts automatically.

**To get the sampling frequency displayed during recording/playback**
Press and hold the ►PLAY button during recording/playback. The sampling frequency will be displayed while the button is held pressed.
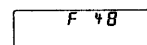


There are three types of sampling frequencies.

| 48 kHz | DAT SP (standard play) recording mode |
|---|---|
| 44.1 kHz | CD and MD |
| 32 kHz | DAT LP (long play) recording mode |

# Useful Function

## Start ID

This signal indicates the beginning of a recorded program (track). By reading these start ID signals, the unit can cue the beginnings of the recorded programs (tracks) automatically.

tape transport direction

| program (track) | program (track) | program (track) |
|---|---|---|
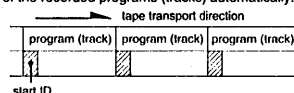
start ID

### To write the start IDs
◆ **To write the start IDs automatically while recording**
The way in which these IDs are written depends on whether the AUTO-ID indicator is appearing on the display window or not.
The AUTO-ID indicator can be switched on and off by pressing the REC button while pressing down the ■ STOP button.

**When the AUTO-ID indicator is off**
The way in which the start IDs are written depends on the way the recording has been done. See the chart below.

| Recording via MIC input Recording via LINE input | Only when the recording has started (including when the pause mode is released) |
|---|---|
| Recording from a CD player via digital input | At the beginnings of programs (tracks)* |
| Recording from a DAT player via digital input | All the start ID signals written on the original DAT tape will be registered. |

* There may be cases where the start IDs may not be written by some CD players.

**When the AUTO-ID indicator is on**
The start IDs will be written if there is a section with a very low recording level or no sound at all lasting for more than three seconds is present on a program (track).

**Note**
There may be cases where the start IDs are not written properly if there is some noise present in the sound source.

◆ **To write the start IDs manually while recording**
While recording, press the REC button at the point where you wish to write the start ID.

**Note**
While writing the start IDs, the 𝘞𝘙𝘐𝘛𝘌 indication comes on and the START ID indicator flashes for about nine seconds (18 seconds if the unit is in the LP mode). While the unit is set in this mode, no operational buttons other than the ■ STOP button will function.

### PGM (program) numbers
These signals are used to identify the program (track) numbers.
Examples in which the PGM numbers are registered are as follows:

**To record a tape from the beginning**
The PGM numbers will be registered simultaneously from PGM number 1 onward while the start IDs are being registered.

**To record on a partially recorded tape**
Locate the desired position on the tape by fast-forwarding or rewinding the tape using either the ►►/►►⊦ or ⊦◄◄/◄◄ button and have the PGM number displayed. Then start the new recording. While the new start IDs are being registered, the PGM numbers will be registered in sequence.

---

**To write the start IDs during playback**
You can write the start IDs in the desired positions without erasing the contents of the recording.

When the desired position on the tape is located, the section of the tape lasting three seconds from that position will be played back repeatedly. (Rehearsal function)
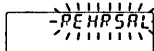
If the located position is not where you desired the start ID to be written, you can move that position in either direction by 0.3 second increments by the following method:

Selected position

Each time you press ◄◄ on the RM-D3K or RMT-D7

Each time you press ►► on the RM-D3K or RMT-D7
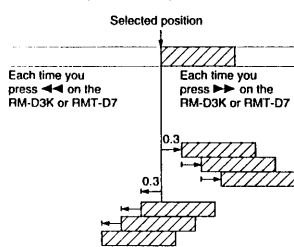
• The rehearsal function can only be repeated up to 16 times at the same position. After that, the unit shuts off automatically.
• You can move the position of a start ID forward or backward to the maximum of approx. 10 seconds.

**Notes**
• You cannot move the start IDs which have already been written manually, or if they have been written automatically during recording. If you wish to move start IDs, erase the existing IDs first. Then select the desired sections before rewrite the IDs.
• You cannot write the start IDs while the rehearsal function is in operation or if the "START ID" indicator and "𝘞𝘙𝘐𝘛𝘌" indication are flashing rapidly.

**To erase the start IDs**
You can erase the start IDs without erasing the contents of the recording on the tape. (Only when the unit is in the stop or playback mode.)
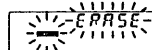
**Note**
If a start ID is erased, the PGM number which has been written at the same position will be erased as well.

**To re-number the PGM numbers (Re-number function)**
You may need to renumber the PGM numbers in the following cases:
— When the start IDs are written during playback.
— When the recording has been resumed from the middle of the tape so that the same PGM numbers co-exist on one tape.
— When the start IDs have been erased together with the PGM numbers so that some PGM numbers are missing.
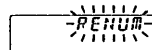
When the re-numbering is over, the tape will rewind to the beginning automatically and stop there.

**Note**
If a tape is used which has been recorded on another DAT deck and has a start ID written at the beginning of that tape, writing or re-numbering the PGM numbers on that tape may not be done properly.

* Except for the Sony world model

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# Serial Copy Management System

The Serial Copy Management System which is incorporated in the domestic DAT equipment prevents repeated digital dubbing from one equipment to another. However, this system lets you record at least one generation of digital prerecorded software via digital connections.

| CD player Music tape MD player | Digital dubbing is possible. → DAT 1st generation tape | Digital dubbing is not possible. ✗ → DAT 2nd generation tape |
|---|---|---|

| BS tuner HD (High Definition) TV CS (Communication Satellite)* | Digital dubbing is possible. → DAT 1st generation tape | Digital dubbing is possible. → DAT 2nd generation tape | Digital dubbing is not possible. ✗ → DAT 3rd generation tape |
|---|---|---|---|

| Microphone Record player Radio tuner etc. | Recording via analog inputs → DAT 1st generation tape | Digital dubbing is possible. → DAT 2nd generation tape | Digital dubbing is not possible. ✗ → DAT 3rd generation tape |
|---|---|---|---|

**Notes**
• There may be cases where the Serial Copy Management System rules are not applicable when an equipment which is not protected with the Serial Copy Management System is used in recording.
• Even if digital dubbing is impossible, you can still dub tape via analog connections.
• When digital dubbing is not possible, the message "𝘊𝘖𝘗𝘠/𝘗𝘙𝘖𝘏𝘐𝘣𝘐𝘛" will come on the display window.

• These source examples may not apply to some countries.

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# Display Window

Day/AM/PM indicator    Tape counter/clock/message indicator
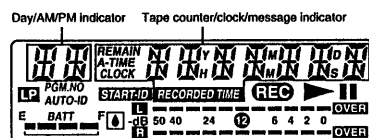
◆ **The tape counter indications**
Each time you press the COUNTER button, the display changes cyclically as follows:

→ 0.0 7.0 9. Tape counter (normal display)

↓

0.0 8.0 2. Absolute time

↓

45 45.8. Remaining time of tape
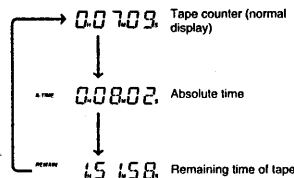
**To reset the tape counter (normal display) to "0.0000"**
Press the RESET button.

**Remaining time of the tape**
The remaining time left on the tape will normally come on after about 16 seconds of commencing playback in the SP mode. However, there may be some aberration in the amount of time displayed which depends upon the tape you use.

**Note**
The tape counter should not be used as a clock
What is being displayed on the tape counter is not completely accurate in terms of displaying the actual time. Therefore, do not use the tape counter as a clock.

◆ **Clock display**
Each time you press the CLOCK button, the display changes cyclically as follows:

→ FR 93 1 1 RECORDED TIME* (date of the recording)

↓

AM 10.08.23 RECORDED TIME* (time of the recording)

↓

SU 93 7 4 Current date (year, month, date)

↓

AM 12.00.00 Current time (hour, minute, second)
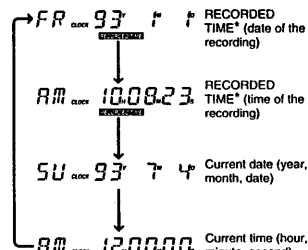
* The RECORDED TIME will not be displayed while the unit is in the recording, recording monitor, or pause mode.

23    24

◆ **Message Displays**
The following messages will be displayed while operating this unit.

| | |
|---|---|
| $ERROR$ | Comes on when the unit is malfunctioning due to a fault.<br>→ Disconnect the power source and re-connecti it.<br>If this does not improve the situation, disconnect the power source and take the unit to the nearest Sony dealer. |
| $HOLD$ | Flashes when the HOLD/PUSH OPEN switch is set to the HOLD position. |
| $NO\ TAPE$ | Flashes when there is no tape inside the unit. |
| $TAPE\cdot$<br>$PROTECT$ | $TAPE$ and $PROTECT$ indications come on alternately when a recording is attempted on a tape whose record-protect shutter is open. |
| $No\ INPUT$ | Flashes when the digital input signal is not received. |
| $COPY\cdot$<br>$PROHIbT$ | $COPY$ and $PROHIbT$ indications come on alternately when the SCMS signal is received. |
| $OPEN$ | Flashes when the cassette door is open. |
| $LOAD$ | Flashes while loading a tape. |
| $UNLOAD$ | Flashes while un-loading a tape. |
| $TOP$ | Flashes when the beginning of a tape[1] is reached. |
| $END$ | Comes on when the end of a tape is reached. |
| $LINEoUT$ | Flashes when the PHONES, AVLS/LINE OUT switch is set to LINE OUT or when the VOLUME button is pressed in this mode. |
| $bATTERY$ | Flashes when the batteries are weak. |
| $EE\quad END$ | Comes on when the end ID[2] is detected. |
| $bLANK$ | Flashes when the unrecorded part of a tape is detected during playback or fast-forwarding. |
| $WRITE$ | Comes on while the start IDs are being written. |
| $MIC\ in$ | Comes on when the REC button is pressed twice while a microphone is connected. Or if the recording source is changed to that of microphone from another source. |
| $LINE\ in$ | Comes on when the REC button is pressed twice while another equipment is connected via the analog connection. Or if the recording source is changed from another source to the equipment with analog connection. |
| $DIGITAL$ | Comes on when the REC button is pressed twice while another equipment is connected via the digital connection. Or if the recording source is changed from another source to the equipment with digital connection. |

[1] It flashes when a new (virgin) tape is used for the first time.
[2] The end ID is a signal to indicate the position of a tape where the recording has ended. You cannot register the end IDs with this unit, however the unit can play back the tapes which are registered with the end IDs and detect them. When the unit detects an end ID, it stops play back there and you can only forward the tape by recording from that point on the tape.

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# SECTION 2
# DISASSEMBLY

**Note :** Follow the disassembly procedure in the numerical order given.

## 2-1. LOWER PANEL ASSY

**Note)** Set the knobs and slide switch to slide in the direction of arrow.

❶ M1.4×2

knobs

❶ M1.4×2

❶ M1.4×2

❷ lower panel assy

slide switch
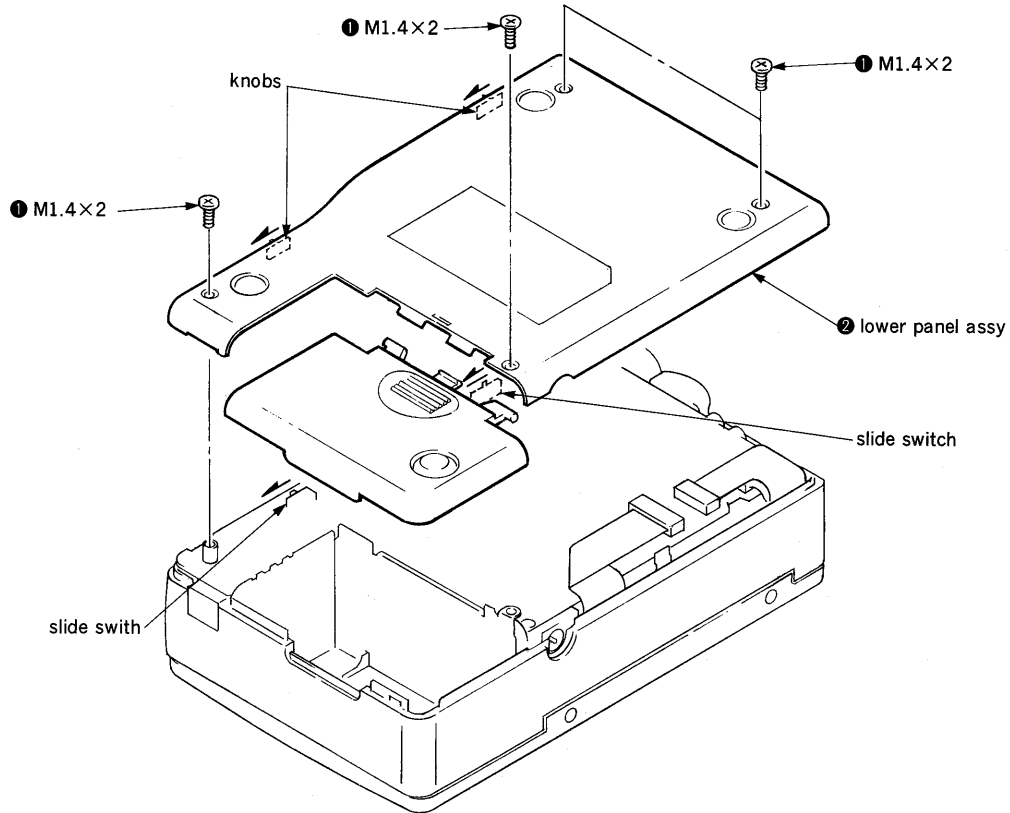
slide swith

## 2-2. MAIN BOARD

**Note)** Set the knobs and slide switch.

❸ lead wires    black

red

❹ CN509

❽ CN507

❻ Open the MAIN board.

❺ M1.4×2

❼ CN501

slide switch

❺ M1.4×2

❿ CN504

❷ MAIN board

❶ claws

❷ knob (REC LEVEL)

❾ CN505

⓫ CN502

knobs

—9—
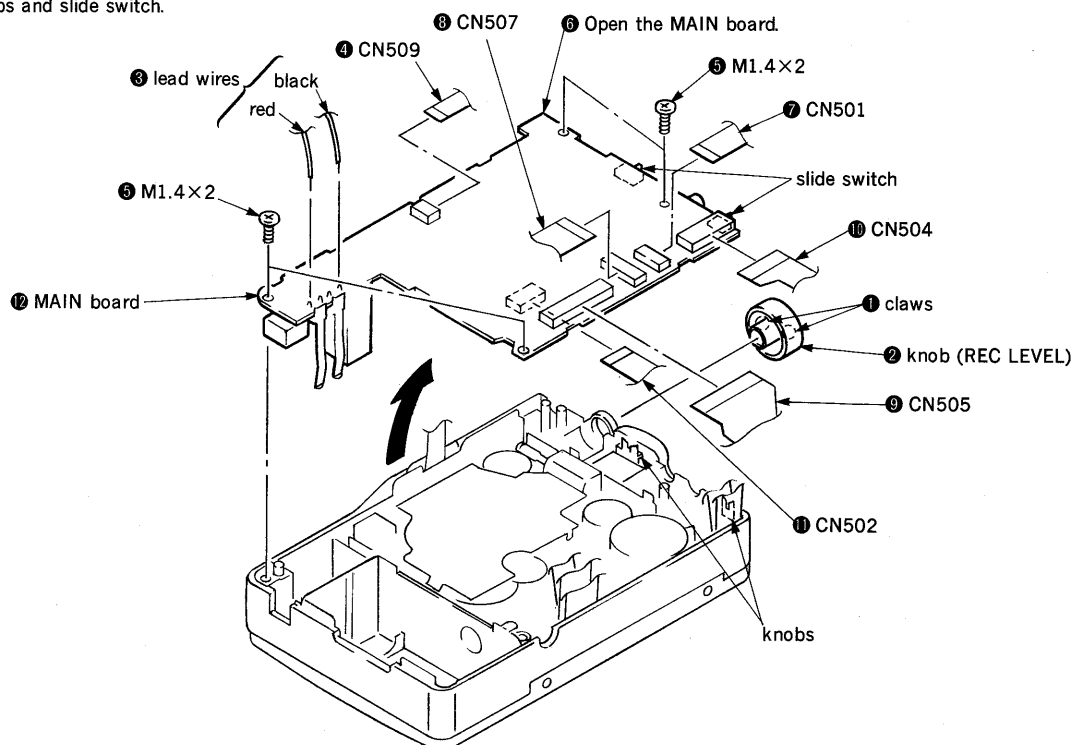
## 2-3. CASSETTE LID ASSY

❶ Push the lever in the direction of arrow and open the cassette lid.



❸ claws

❹ cassette lid assy

❺ flexible board

❷ M1.4×2

## 2-4. SYSTEM CONTROL BOARD UNIT

❷ tapping screws
(1.7×2.5)

❸ system control board unit

❹ button (PLAY)

❻ button (LIGHT)

❺ button (REC)

❶ M1.4×2
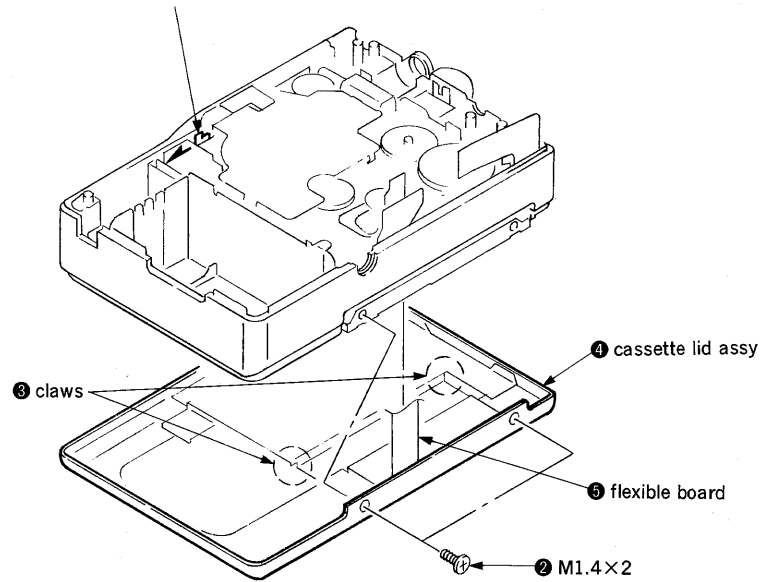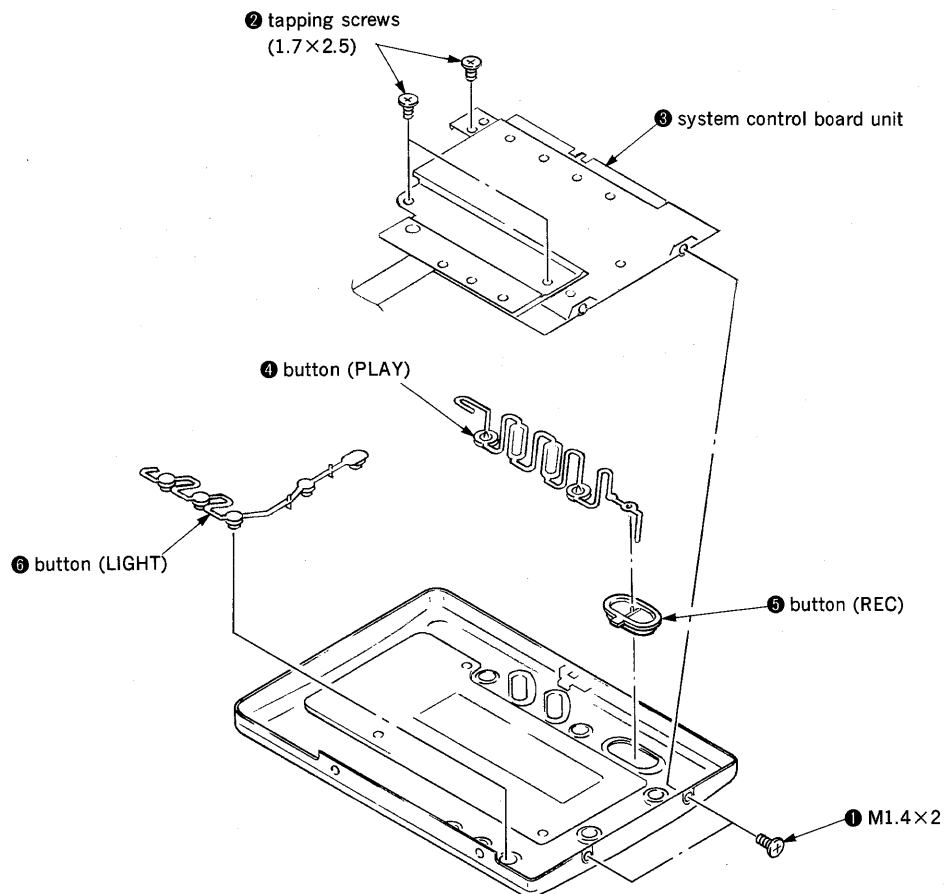
## 2-5. CABINET

**Note)** Set the knobs and slide switch.

❶ precision screws
(M1.4×2.5)

❹ knob (MIC SENS)

❶ precision screws
(M1.4×2.5)

knob

❷ cabinet

❸ knob (REC MODE)

slide switch

## 2-6. BRACKET

❹ M1.4×1.6

❺ bracket (B)

❾ bracket (R) assy

❽ M1.4×1.6

❸ M1.4×1.6

❼ bracket (L)

❻ M1.4×1.6

❶ M1.4×1.6

❷ bracket (F) assy

## 2-7. DRUM ASSY

❾ M1.4×1.6

❿ cover (face pass assy)

⓭ precision screw (M1.4×1.1)

⓫ precision screw

⓮ P1.4×2.5

❼ step screw

❽ holder

⓯ drum assy

❻ step screw

❺ step screw

⓬ ground plate

❶ M1.4×1.1

❹ step screw

❸ flexible board

❷ RF module (Supplied with drum assy)

# SECTION 3
# DIAGRAMS

## 3-1. PIN DESCRIPTION
### ● IC506 CXP80524-078R

| Pin No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 1 | DMCRQ | O | Serial communication request signal to LCD micro-computer of system control board unit. ("L": Communication mode) |
| 2 | XSTBY | O | MB3796, CXA8022N and MCD002AM standby signal. ("L": Standby mode) |
| 3 | DRMBR | O | Drum motor brake signal ("H": Brake) |
| 4 | CAPDIR | O | Capstan motor rotation direction control signal ("H": FWD) |
| 5 | DACONT | O | Power ON/OFF signal of D/A converter section. ("L": Power ON) |
| 6 | XRSTDSP | O | CXD2605 reset signal ("L": Reset) |
| 7 | SYSPAW | O | System power ON/OFF signal ("H": Power ON) |
| 8 | LP/SP1 | O | LP switch detection output |
| 9 | | O | Not used |
| 10 | | — | Not used |
| 11 | REI | I | Rotary encoder input 1 |
| 12 | REM | I | Rotary encoder input 2 |
| 13 | | — | Not used |
| 14 | REO | I | Rotary encoder input 3 |
| 15 | RELD | I | Load detection signal ("L": Load completion) |
| 16 | REULD | I | Unload detection signal ("L": Unload completion) |
| 17 | XRECINH | I | REC proof switch input ("L": REC prohibition) |
| 18 | XCASLK | I | Cassette compartment lock switch input ("L": Cassette compartment lock) |
| 19 | CASIN | I | Cassette insert detection ("H": Cassette insert) |
| 20 | | — | Not used |
| 21 | XAVLS | I | AVLS switch input ("L": AVLS) |
| 22 | HP/LINE | I | HEADPHONE/LINE OUT switch input ("L": LINE OUT) |
| 23 | MIC/LINE | I | MIC/LINE IN switch input ("H": LINE IN) |
| 24 | MUTM | I | Mute output detection of CXD2605. ("H": Mute) |
| 25 | DIG/ANA | I | DIGITAL/ANALOG switch input ("L": DIGITAL) |
| 26 | VOL− | I | VOLUME DOWN switch input ("L": VOLUME DOWN) |
| 27 | VOL+ | I | VOLUME UP switch input ("L": VOLUME UP) |
| 28 | | — | Not used |
| 29 | AC/DC | I | AC/DC power detection ("L": AC power) |
| 30 | CTRMA | O | Control motor control signal |
| 31 | CTRMB | O | Control motor control signal |
| 32 | ENLDON | O | Tape top/end LED ON/OFF signal ("H": LED ON) |
| 33 | | — | Not used |
| 34 | PLGON | O | Plunger ON/OFF signal ("H": Plunger ON) |
| 35 | | — | Not used |
| 36 | MP | I | Fix to GND. |
| 37 | XRST | I | Reset input |
| 38 | | — | Not used |
| 39 | VSS | — | GND |
| 40 | XTAL | O | Crystal oscillator (9.408MHz) output |
| 41 | EXTAL | I | Crystal oscillator (9.408MHz) input |
| 42 | LP/SP2 | I | LP switch input ("L": LP) |
| 43 | | — | Not used |
| 44 | SI | I | Serial data input from system control board unit. |
| 45 | SO | O | Serial data output to system control board unit and digital filter. |
| 46 | | — | Not used |
| 47 | XSCK | O | Serial clock output to system control board unit and digital filter. |
| 48 | SBSY | I | Communication request signal from CXD2605. (Down edge to start communication) |
| 49 | SBSI | I | Serial data input from CXD2605. |
| 50 | | — | Not used |

| Pin No. | Pin Name | I/O | Pin Function |
|---|---|---|---|
| 51 | SBSO | O | Serial data output to CXD2605. |
| 52 | EXCK | O | Serial clock output to CXD2605. |
| 53 | AVSS | — | Analog port GND |
| 54 | AVREF | — | Analog port reference GND |
| 55 | AVDD | — | +5V |
| 56 | SWPADJ | I | Switching pulse delay adjustment voltage input |
| 57 | RFENV | I | RF envelope detection input |
| 58 | REMOTE | I | Headphone remote control signal input |
| 59 | DEW | I | Dew sensor input ("L" : Dew) |
| 60 | | — | Not used |
| 61 | TEND | I | Tape top sensor input ("L" : Tape top) |
| 62 | SEND | I | Tape end sensor input ("L" : Tape end) |
| 63 | BATTERY | I | Battery voltage level detection |
| 64 | | — | Not used |
| 65 | ATFPLT | I | ATF pilot detection signal |
| 66 | TRLFG | I | Reel FG input of take up side (24 per 1 rotation) |
| 67 | | — | Not used |
| 68 | SRLFG | I | Reel FG input of supply side (24 per 1 rotation) |
| 69 | CAPFG | I | Capstan FG input (360 per 1 rotation) |
| 70 | DRMFG | I | Drum FG input (24 per 1 rotation) |
| 71 | DRMPG | I | Drum PG input |
| 72 | DREF | I | Drum reference signal (LP mode : 16.7Hz, SP mode : 33.3Hz) |
| 73 | MCLK | I | Channel clock (9.408MHz) |
| 74 | RFDT | I | RF signal input |
| 75 | AVLS | O | AVLS ON signal |
| 76 | | — | Not used |
| 77 | DRMPWM | O | Drum motor control PWM output (Carrier frequency : 36.75kHz) |
| 78 | CAPPWM | O | Capstan motor control PWM output (Carrier frequency : 36.75kHz) |
| 79 | ATFPWM | O | ATF gain control amplifier control PWM output (Carrier frequency : 36.75kHz) |
| 80 | DARST | O | Reset signal to D/A converter |
| 81 | | — | Not used |
| 82 | MLE | O | Serial data take up signal to digital filter. (Up edge to take up) |
| 83 | SYMN | I | C1 syndrome pulse input |
| 84 | STBY | I | Sleep input ("H" : Sleep) |
| 85 | | — | Not used |
| 86, 87 | VDD | — | +5V |
| 88 | | — | Not used |
| 89 | VSS | — | GND |
| 90 | | — | Not used |
| 91 | ASTY | O | ATF sync output |
| 92 | | — | Not used |
| 93 | DMUTE | O | Digital mute signal ("H" : Mute) |
| 94 | HPVC | O | Headphone amplifier voltage control signal |
| 95 | | — | Not used |
| 96 | MODE | O | Mode setting of RF amplifier ("H" : REC current ON) |
| 97 | LMUTE | O | LINE OUT mute signal ("H" : Mute) |
| 98 | ADCON | O | A/D converter ON/OFF signal |
| 99 | | — | Not used |
| 100 | SWP | O | Switching pulse output ("L" : Ach head) |

• IC Block Diagrams

## IC302  TK15021MTL

GND  B2  NC  OUT2  NC  A2  KEY2
(14)(13)(12)(11)(10)(9)(8)

(1)(2)(3)(4)(5)(6)(7)
VDD  B1  NC  OUT1  NC  A1  KEY1

## IC304  AK5344

VA+  AGND  VDP+  VDB+  DGND  MCLK  CMODE
(23)(22)(15)(14)(16)(10)(9)

CLOCK DIVIDER

AINL+ (6) — ΔΣ MODULATOR — DECIMATION FILTER
AINL− (7)

AINR+ (4) — ΔΣ MODULATOR — DECIMATION FILTER
AINR− (5)

SERIAL INTERFACE

(11) L/R
(12) SCLK
(13) SDTO
(18) FSYNC
(19) DOF

VREF (24) — VOLTAGE REFERENCE
VCOM (25)

(8)    (17)    (20)    (21)
PD    TST1    TST2    TST3

## IC305  SM5840BS

CKSL  LRCI
(1)(20)

XTI (2)
XTO (3)  SYSTEM CLOCK
CKO (4)

DIN (22)  BCKI (21)
INPUT DATA INTERFACE

FILTER CALCULATION & ATTENATION CALCULATION BLOCK

RST (5)  TIMING CONTROLLER

MDT (8)
MCK (9)  MODE & ATTENUATOR INTERFACE  MODE CONTROL
MLE (10)

OUTPUT DATA INTERFACE
(19) BCKO
(18) WCKO
(14) DOL
(13) DOR
(12) DG

ATTENUATOR·MUTE CONTROL

VSS  VDD
(11)(16)

## IC311  PCM68U

+VCC (5)                    (20) +VDD
VCOM(L) (4)                 (19) TP1
N.C (3)                     (18) RSVD
I−OUT(L) (6) — 18-bit SERIAL I OUT D/A CONV. — 18-bit SERIAL TO PARALLEL SHIFT REGISTER — (17) DATA(L)
SERVO DC (9) — SERVO FILTER                   (16) WDCK
REF DC (8) — REF. FILTER     CONTROL LOGIC    (15) SYS-CLK
I−OUT(R) (7) — 18-bit SERIAL I OUT D/A CONV. — 18-bit SERIAL TO PARALLEL SHIFT REGISTER — (14) BCK
N.C                          (13) DATA(R)
VCOM(R)                      (12) TP2
A.GND                        (11) D.GND

## IC501  MB3796

SCP (1)                     (24) VCC
TC (2)  TRIANGLE GENERATOR  (23) CT 1
V REF (3)                   (22) CT 2
RT (4)                      (21) GND
SB (5)  REGULATOR           (20) ⊖TC
VAO 1 (6)                   (19) VAO 2
VI 1− (7)                   (18) VI 2−
VI 1+ (8)                   (17) VI 2+
RB 1 (9)                    (16) VC 2
VC 1 (10)                   (15) RB 2
CB1 B (11)                  (13) CB2 A
CB1 A (12)                  (14) CB2 B

## IC502  CXA8022N

STBY  STAT  GND  COM  W IN  V IN  U IN  VCC 3  VS  U  I COM  V
(24)(23)(22)(21)(20)(19)(18)(17)(16)(15)(14)(13)

ROTOR POSITION DETECT

EXOR

TIMING CONTROL  SOFT SWITCHING DRIVE  OUTPUT DRIVE BUFFER

START CONTROL

OVER HEAT PROTECT

BRAKE  FG  CSLP1  CSLP2  IB  IB SET  IB S  VCC 1  VS  W  I COM
(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)(11)

## IC503  MCD002BM

VCC  VS
(28)(29)

UIN1 (13)                           (5) UR
UIN2 (12)  V+           AMP          (4) UOUT
                        B           
VIN1 (11)  V+    MATRIX  LEVEL SHIFT  (2) VR
VIN2 (10)        180°           R    (1) VOUT
                 ·120°   LIMIT CIRCUIT
WIN1 (9)   V+                        (34) WR
WIN2 (8)                        B    (33) WOUT
ANGL (10)        TSD    Va−Vx   1/2 Vx
                       Vx     R3      (31) RF
                              Vx+Vx   
STBY (27)  REF. VOLTAGE              Vx  (32) VX

VH+ (14)  REF. VOLTAGE  POSI./NEGA
VH− (15)
FRC (26)

FG1+  FG1−  FGOUT  FGVCC  O.L.

## 3-2. SEMICONDUCTOR LEAD LAYOUTS

**AK5344-VS-E1**

(TOP VIEW)

**NJM2100V**
**NJM3416V**
**NJM4560M**
**TK15021MTL**

(TOP VIEW)

**TK11245TL**

**XN6501**

**MA728**

Anode

Cathode

**CXA8022N**
**MB3796PFV-G-BND-ER**

(TOP VIEW)
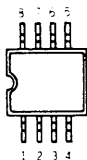
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**TK10502MT1**
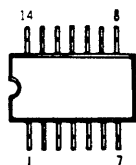
(TOP VIEW)

**DTC113ZU**

3 OUT

2 IN

1 GND

**XP6501**

1
2
3
6
5
4

1
2
3
6
5
4

**RB420D**
**RD5.6M-B2**
**SB07-03C**

NC

2    3    1

**CXD2605R**
**CXP80524-078R**

INDEX

(TOP VIEW)

**PCM68U-J-T1**

(TOP VIEW)
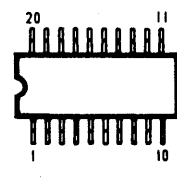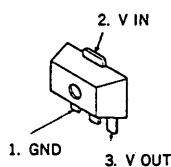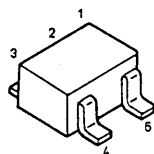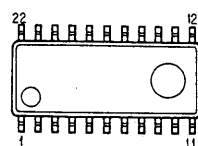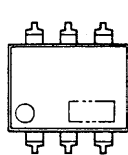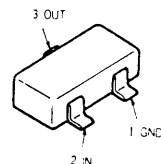
**DTC114YK**
**UN5111**
**UN5114**
**UN5211**
**UN5212**
**UN5214**
**UN5215**
**2SA1162-G**
**2SA1586-YG**
**2SB624-BV345**
**2SC1623-L5L6**
**2SC2712-YG**
**2SD596-DV5**
**2SD1328-S**
**2SD1819A-R**
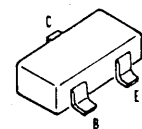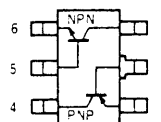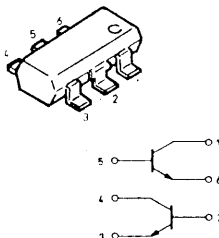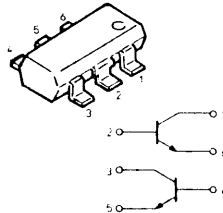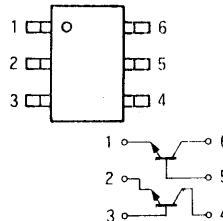
**2SB1121-ST**
**2SB1121-T**
**2SD999-CLCK**
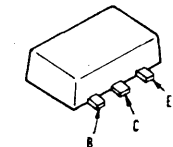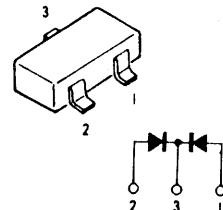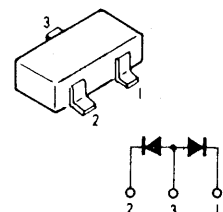
B    C    E

**SB007T03C**
**1SS226**

2    3    1

**CXK58257ATM-12LB**

(TOP VIEW)

**RH5RE40AA-T1**

2. V IN

1. GND    3. V OUT

C

E

B

**GL453S**
**MA786WK**

3

2

2    3    1

**CL-170PG-CD-T**

anode
cathode    anode

**MCD002BM-TLM**

**RN5VL33AA-T1**
**SC7S04F**

1
2
3
5
4

**XN4315**

6
5
4

NPN

PNP

1
2
3

**MA141WK**
**1SS181**

3

2

2    3    1

**MM1138XQ**

MARKING SIDE VIEW

**SM5840BS**

**XN4504**

5
4
1
2
3
6

5
4
3

**MA713**

4
3
1
2

4    1
3    2

# TCD-D7/D7K
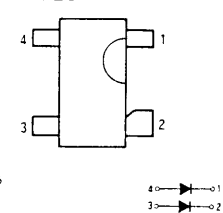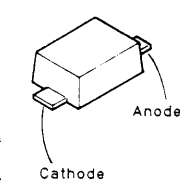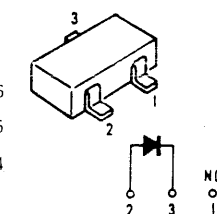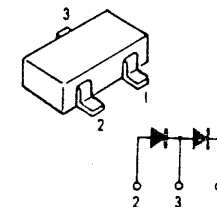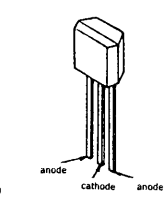
● Semiconductor Location

| Ref. No. | Location | Ref. No. | Location |
|---|---|---|---|
| D102 | C-3 | Q106 | F-26 |
| D103 | E-2 | Q202 | F-26 |
| D104 | E-26 | Q206 | F-26 |
| D202 | C-3 | Q301 | G-4 |
| D203 | F-26 | Q302 | E-24 |
| D204 | E-26 | Q304 | F-24 |
| D301 | C-27 | Q305 | G-5 |
| D303 | F-5 | Q306 | J-2 |
| D331 | F-25 | Q308 | G-5 |
| D332 | C-24 | Q309 | G-4 |
| D340 | F-24 | Q311 | F-3 |
| D341 | C-25 | Q312 | F-24 |
| D501 | H-20 | Q313 | G-4 |
| D502 | H-19 | Q314 | G-4 |
| D503 | I-19 | Q316 | C-24 |
| D505 | D-5 | Q317 | F-3 |
| D506 | D-10 | Q318 | F-3 |
| D507 | D-9 | Q331 | F-25 |
| D508 | D-9 | Q332 | F-25 |
| D509 | C-9 | Q333 | C-25 |
| D510 | C-9 | Q334 | F-25 |
| D511 | E-10 | Q353 | C-24 |
| D512 | D-8 | Q354 | C-24 |
| D515 | D-7 | Q355 | C-25 |
| D516 | D-7 | Q356 | D-25 |
| D517 | D-6 | Q357 | F-25 |
| D1001 | H-29 | Q361 | F-25 |
| (D1001) | H-13 | Q362 | E-24 |
| D1003 | I-29 | Q363 | J-3 |
| D2001 | K-22 | Q364 | I-3 |
|  |  | Q365 | F-2 |
| IC301 | H-26 | Q367 | C-5 |
| IC302 | E-27 | Q501 | H-20 |
| IC303 | H-25 | Q502 | H-19 |
| IC304 | H-24 | Q503 | F-7 |
| IC305 | C-22 | Q504 | D-8 |
| IC308 | D-26 | Q505 | D-7 |
| IC311 | C-23 | Q508 | J-6 |
| IC313 | H-4 | Q509 | I-6 |
| IC314 | D-24 | Q512 | C-16 |
| IC315 | E-25 | Q513 | A-19 |
| IC501 | G-19 | Q514 | F-9 |
| IC502 | G-7 | Q515 | D-17 |
| IC503 | H-23 | Q518 | I-8 |
| IC504 | G-8 | Q518 | I-23 |
| IC505 | F-8 | Q519 | C-8 |
| IC506 | E-22 | Q1001 | I-11 |
| IC507 | H-21 | Q1002 | I-14 |
| IC508 | D-20 | Q2001 | K-19 |
| IC509 | E-19 | Q2002 | L-22 |
| IC510 | D-8 | Q2003 | L-22 |
| IC511 | E-9 | Q2004 | K-22 |
| IC2001 | K-22 | Q3001 | E-18 |
| Q001 | C-7 |  |  |
| Q102 | E-27 |  |  |

( ): FLEXIBLE BOARD

Note:
- ▬ : parts extracted from the conductor side.
- ■ : parts mounted on the conductor side.
- ▩ : Pattern on the side which is seen.
- ▨ : Pattern of the rear side.



[MAIN BOARD] (COMPONENT SIDE)
[MAIN BOARD] (CONDUCTOR SIDE)
[TRANSFORMER BOARD]
SWITCH UNIT
[AT-5 BOARD]
[STOP BOARD]
[FLEXIBLE BOARD] (COMPONENT SIDE)
[FLEXIBLE BOARD] (CONDUCTOR SIDE)
DRUM MOTOR
[AT-2 BOARD]
[AT-1 BOARD]
[AT-4 BOARD]
[AT-3 BOARD]
SYSTEM CONTROL BOARD UNIT
RF MODULE
CAPSTAN MOTOR

3-4. SCHEMATIC DIAGRAM—ANALOG SECTION—

- Refer to page 15 for IC Block Diagrams.
- Refer to page 31 for Waveforms.

Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ▭▭▭▭ : B+ Line
- Power voltage is dc 6V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
  no mark: PLAY
  ( ): REC
- Voltages are taken with a VOM (input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  ▷▷ : PB
  ▷▷ : REC

—23—
—24—
—25—
—26—
04

**TCD-D7/D7K**

**Note:**
- All capacitors are in μF unless otherwise noted. pF: μμF
- 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.
- ⊖ : B+ Line
- Power voltage is dc 6V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark : PB
- ( ) : REC
- Voltages are taken with a VOM (Input Impedance 10MΩ).
- Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope.
- Waveforms variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
- ▷ : PB
- ▷ : REC

# ● Waveforms
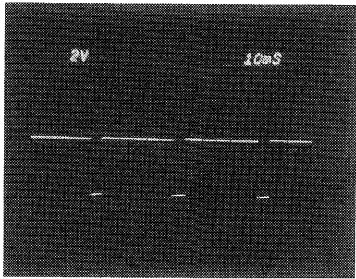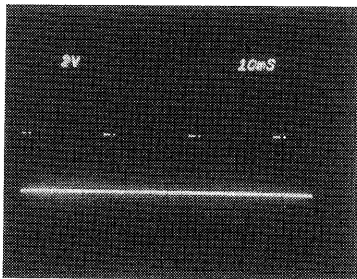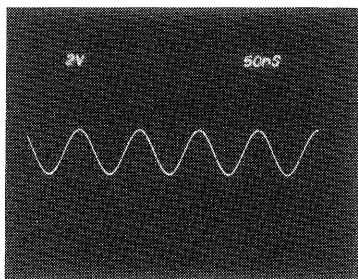
❶ IC506① 4Vp-p

❻ IC506㊾, �51 4.0Vp-p

⓫ IC508⑫ 4.0Vp-p

❷ IC506㊶ 2.8Vp-p

❼ IC506㊲ 4.0Vp-p

⓬ IC508㊼ 4.0Vp-p
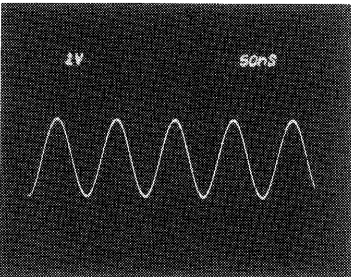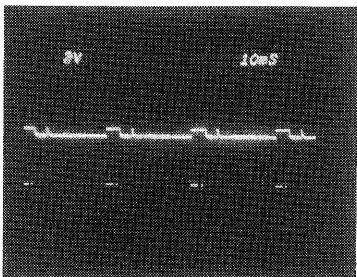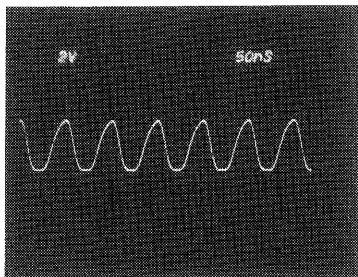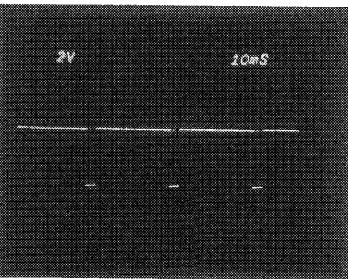
❸ IC506㊹ 4.0Vp-p
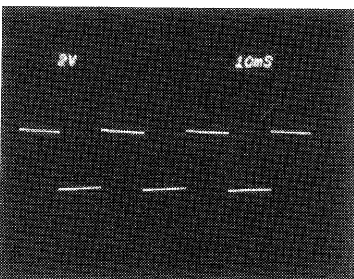
❽ IC506㉒
IC508⑲ } 4.0Vp-p
TP (DREF)
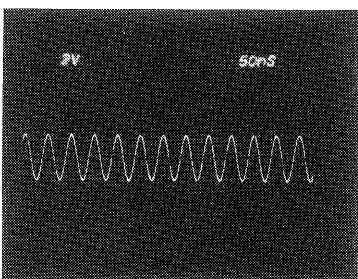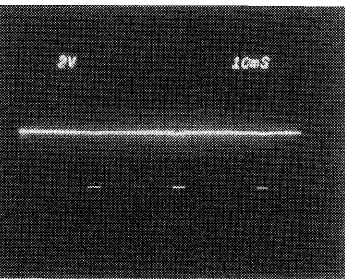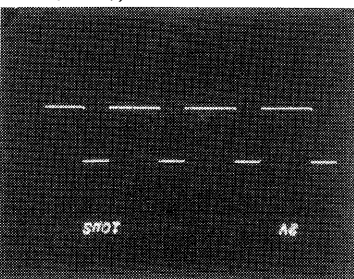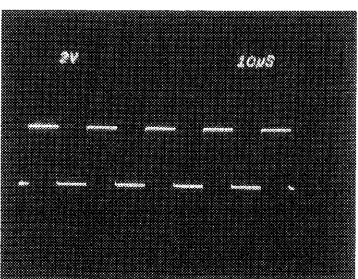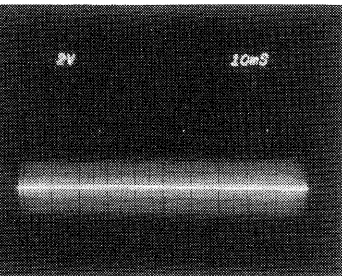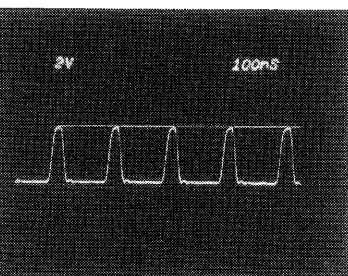
⓭ IC508㊽ 3.2Vp-p

❹ IC506㊼ 4.0Vp-p

❾ IC506㊴ 4.0Vp-p

⓮ IC508㊼ 4.0Vp-p

❺ IC506㊽ 4.0Vp-p

❿ IC508⑧ 4.0Vp-p

⓯ IC508㊲ 4.0Vp-p
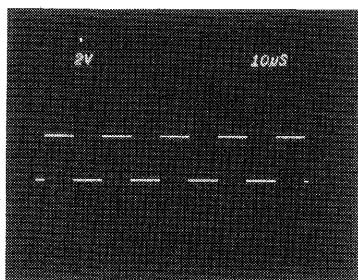
⑯ TP309 (LRCK)　3.1Vp-p
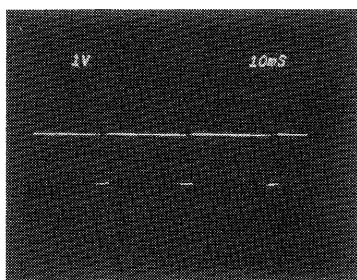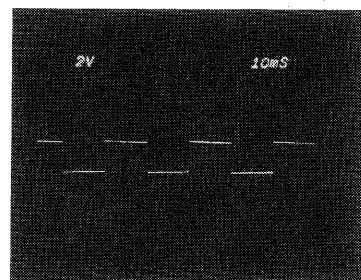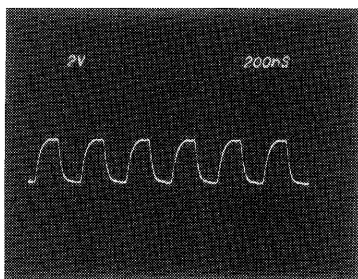
㉑ IC305⑧  
TP304　} 1.8Vp-p

㉖ IC506⑩  
IC508㊲  
TP (SWP)　} 2.2Vp-p
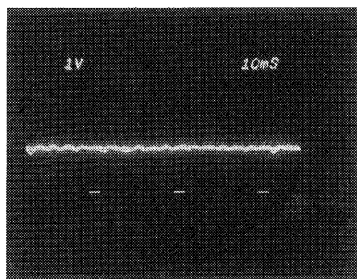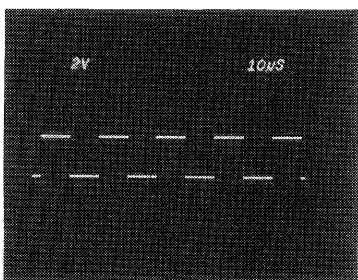
⑰ IC304⑫  
TP308 (XBCK)　} 3.0Vp-p
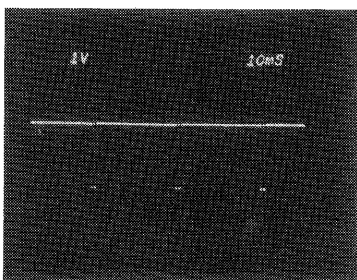
㉒ IC305⑨  
TP303　} 1.8Vp-p

⑱ IC304⑪  
TP310　} 2.7Vp-p
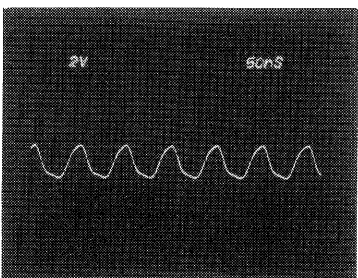
㉓ IC504⑥  
IC506㋑  
TP (DPG)　} 2.2Vp-p

⑲ IC305⑲  
IC311⑭　} 2.4Vp-p
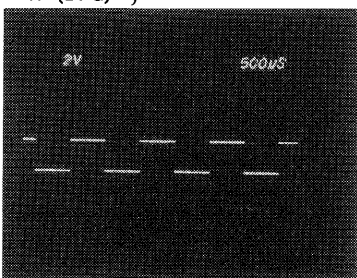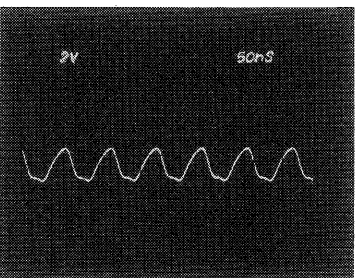
㉔ IC504⑤  
IC506⑩  
TP (DFG)　} 2.2Vp-p

⑳ IC304⑩  
TP311　} 2.4Vp-p
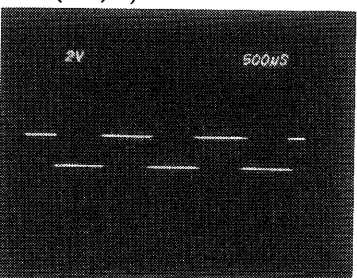
㉕ IC504④  
IC506㉔  
TP (CFG)　} 2.1Vp-p

NOTE:
- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example :
  KNOB, BALANCE (WHITE)...(RED)
       ↑   ↑
     Parts Color Cabinet's Color

- Hardware (# mark) list is given in the last of this parts list.

## 4-1. CABINET SECTION
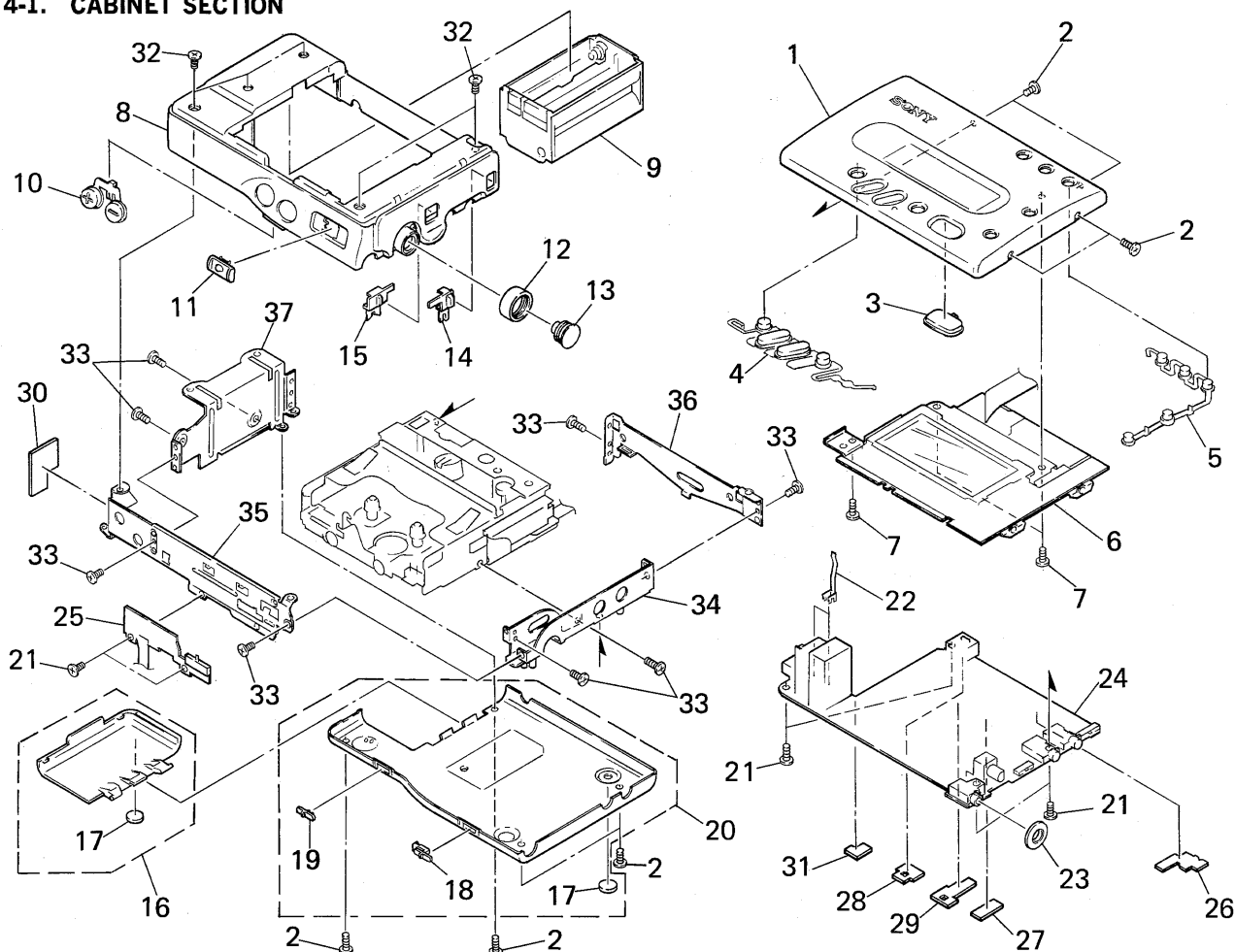


| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | X-3366-464-1 | LID ASSY, CASSETTE | |
| 2 | 3-704-197-13 | SCREW (M1.4X2.0), LOCKING | |
| 3 | 3-387-471-01 | BUTTON (REC/ID WRITE) | |
| 4 | 3-387-470-01 | BUTTON (◄◄/◄◄, STOP, PLAY, ►►/►►) | |
| 5 | X-3366-465-1 | BUTTON (CLOCK, COUNTER, RESET, LIGHT, PAUSE) ASSY | |
| 6 | 1-467-043-11 | PC BOARD UNIT, SYSTEM CONTROL | |
| 7 | 3-318-382-61 | SCREW (1.7X2.5), TAPPING | |
| 8 | 3-387-447-01 | CABINET | |
| 9 | X-3366-462-1 | CASE ASSY, BATTERY | |
| 10 | 3-387-448-01 | BUTTON (VOLUME +/-) | |
| 11 | X-3366-460-1 | KNOB (HOLD) ASSY | |
| 12 | 3-387-453-01 | KNOB (REC. RING) | |
| 13 | 3-387-452-01 | KNOB (REC LEVEL) | |
| 14 | 3-387-455-01 | KNOB (MIC SENS) | |
| 15 | 3-387-454-01 | KNOB (REC MODE) | |
| 16 | X-3366-466-1 | LID ASSY, BATTERY CASE | |
| 17 | 3-387-476-01 | FOOT, RUBBER | |
| 18 | 3-387-464-01 | KNOB (AVLS) | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 19 | 3-387-465-01 | KNOB (SP/LP) | |
| 20 | X-3366-463-1 | PANEL ASSY, LOWER | |
| 21 | 3-335-797-01 | SCREW (M1.4X2), TOOTHED LOCK | |
| 22 | 3-387-477-01 | TERMINAL (MAIN), BATTERY | |
| 23 | 3-387-466-01 | RING, ORNAMENTAL (PHONES/LINE OUT) | |
| 24 | A-3016-354-A | MAIN BOARD, COMPLETE | |
| 25 | 1-467-044-11 | SWITCH UNIT (BLOCK TYPE) | |
| * 26 | 1-648-686-11 | AT-1 BOARD | |
| * 27 | 1-648-687-11 | AT-2 BOARD | |
| * 28 | 1-648-688-11 | AT-3 BOARD | |
| * 29 | 1-648-689-11 | AT-4 BOARD | |
| * 30 | 1-648-722-11 | AT-5 BOARD | |
| * 31 | 1-648-989-11 | STOP BOARD | |
| 32 | 3-349-825-81 | SCREW, PRECISION | |
| 33 | 3-704-197-01 | SCREW (M1.4X1.6), LOCKING | |
| * 34 | X-3366-457-1 | BRACKET (R) ASSY | |
| * 35 | X-3366-458-1 | BRACKET (F) ASSY | |
| * 36 | 3-387-446-01 | BRACKET (B) | |
| * 37 | 3-387-443-01 | BRACKET (L) | |

## 4-2. CASSETTE HOLDER SECTION
## (MT-D7-47)

RF MODULE
(included in 154 (drum assy))
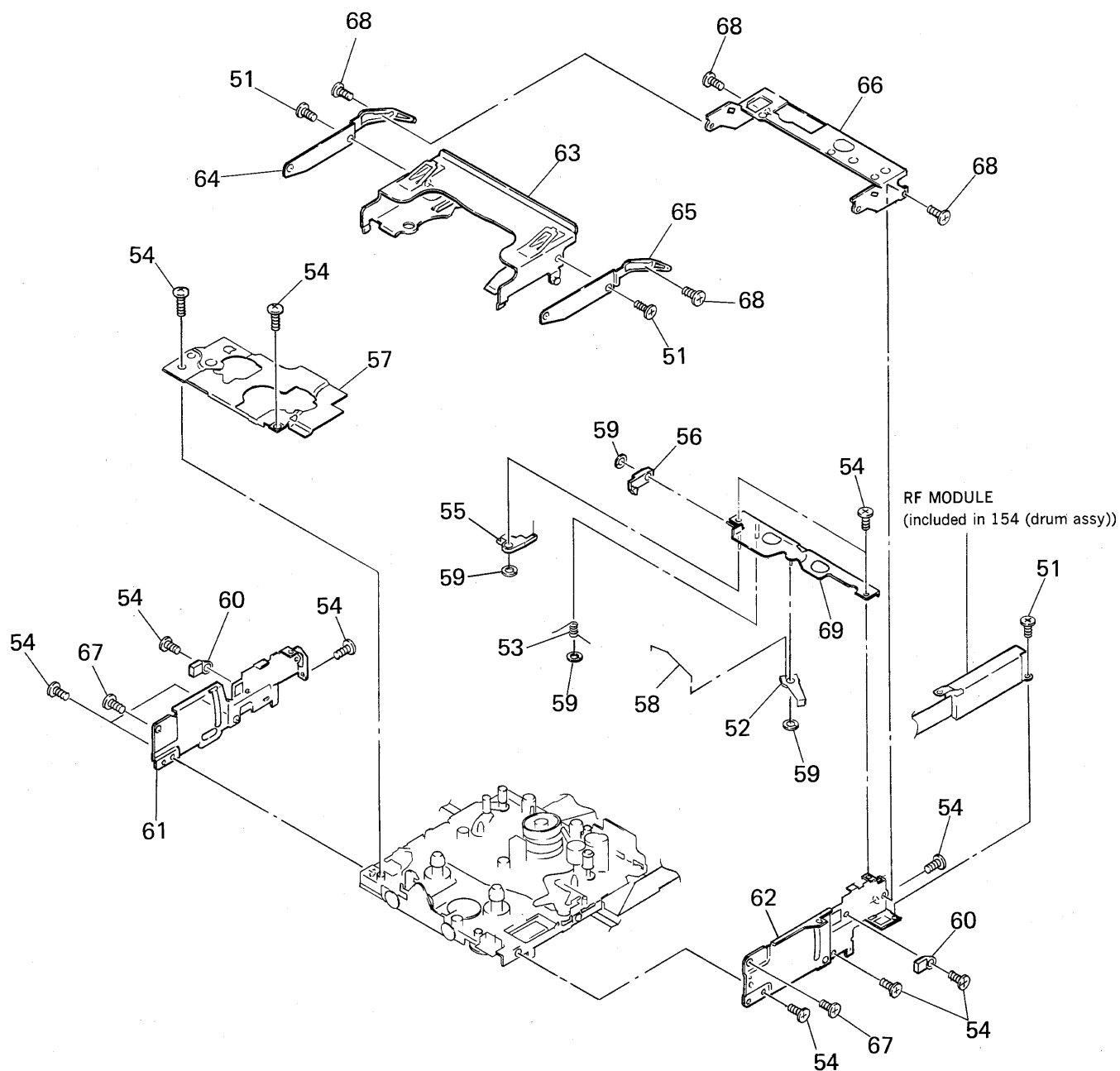
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 51 | 3-349-825-01 | SCREW | |
| 52 | 3-387-569-01 | WIPER | |
| 53 | 3-363-266-01 | SPRING, TORSION | |
| 54 | 3-389-523-08 | SCREW (LOCK ACE) M1.4X1.6 | |
| 55 | 3-363-261-01 | LEVER (B) | |
| 56 | 3-363-260-01 | LEVER (A) | |
| * 57 | 3-387-574-01 | COVER (MD) | |
| 58 | 3-363-443-01 | LINK | |
| 59 | 3-315-384-11 | WASHER, STOPPER (T=0.25) | |
| 60 | 3-387-565-01 | HOLDER (END SENSOR) | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 61 | X-3366-479-1 | BRACKET (L) ASSY | |
| 62 | 3-387-573-01 | BRACKET (R) | |
| 63 | X-3366-480-1 | HOLDER (CASSETTE) ASSY | |
| 64 | 3-387-571-01 | LEVER (CASSETTE COMPARTMENT L) | |
| 65 | 3-387-570-01 | LEVER (CASSETTE COMPARTMENT R) | |
| 66 | 3-387-572-01 | HOLDER | |
| 67 | 3-387-566-01 | SCREW, STEP | |
| 68 | 3-387-567-01 | SCREW, STEP | |
| 69 | X-3366-478-1 | COVER (TAPE PASS) ASSY | |

## 4-3. MECHANISM DECK SECTION 1
### (MT-D7-47)
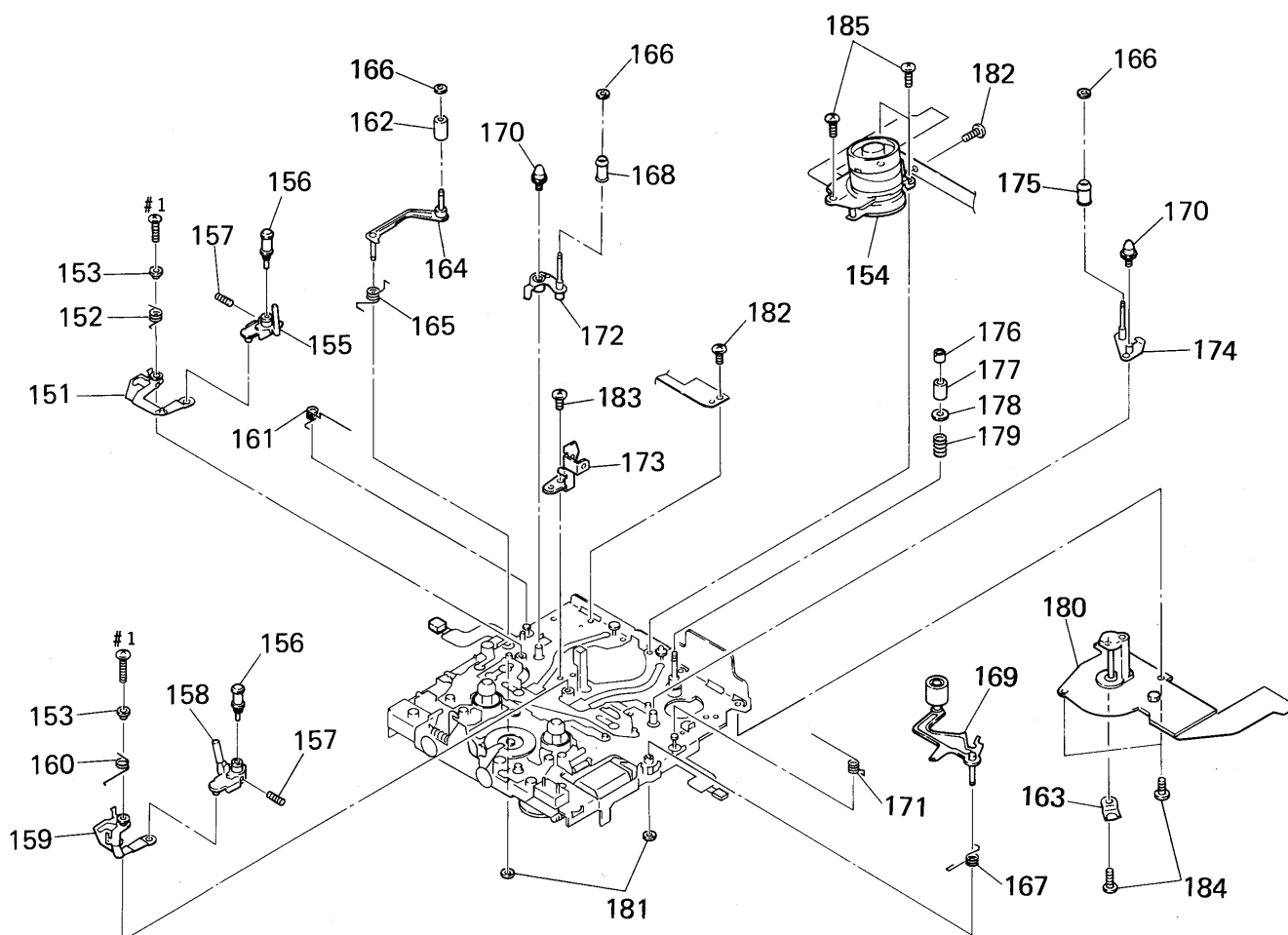


| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 151 | X-3344-945-1 | LEVER (LOADING SA) ASSY | |
| 152 | 3-360-897-01 | SPRING, TORSION | |
| 153 | 3-354-247-03 | SHAFT (LOADING B) | |
| 154 | X-4943-984-1 | DRUM ASSY (INCLUDING RF MODULE) | |
| 155 | X-3364-968-1 | GUIDE BLOCK (S) ASSY, SLANT | |
| 156 | X-3344-963-1 | GUIDE (DIA. 4) ASSY, ROLLER | |
| 157 | 3-366-945-01 | SET-SCREW, SLOT M1.2X3 | |
| 158 | X-3344-969-1 | GUIDE BLOCK (T) ASSY, SLANT | |
| 159 | X-3344-943-1 | LEVER (LOADING TA) ASSY | |
| 160 | 3-360-895-01 | SPRING, TORSION | |
| 161 | 3-361-106-01 | SPRING, TORSION | |
| 162 | 3-360-866-01 | ROLLER (TENSION REGULATOR) | |
| 163 | 3-363-224-01 | REINFORCEMENT (CAPSTAN MOTOR) | |
| 164 | X-3366-481-1 | LEVER (TENSION REGULATOR A) ASSY | |
| 165 | 3-361-118-01 | SPRING, TORSION | |
| 166 | 3-315-414-00 | WASHER | |
| 167 | 3-361-115-01 | SPRING, TORSION | |
| 168 | 3-360-864-01 | ROLLER (B), GUIDE | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 169 | X-3362-201-1 | ARM ASSY, PINCH ROLLER | |
| 170 | 3-360-817-01 | SHAFT (CASSETTE) | |
| 171 | 3-361-105-01 | SPRING, TORSION | |
| 172 | X-3366-482-1 | LEVER (SF) ASSY | |
| * 173 | 3-388-542-01 | REINFORCEMENT (LED) | |
| 174 | X-3366-483-1 | LEVER (TF) ASSY | |
| 175 | 3-360-863-01 | ROLLER (A), GUIDE | |
| 176 | 3-337-605-01 | NUT, ADJUSTMENT | |
| 177 | 3-366-697-21 | GUIDE (GA), FIXED | |
| 178 | 3-337-677-01 | FLANGE | |
| 179 | 3-573-470-00 | SPRING, COMPRESSION | |
| 180 | 8-835-495-01 | MOTOR, DC SCR-0201A | |
| 181 | 3-315-384-11 | WASHER, STOPPER (T=0.25) | |
| 182 | 3-349-825-01 | SCREW | |
| 183 | 3-389-523-05 | SCREW (LOCK ACE) M1.4X1.4 | |
| 184 | 3-389-523-08 | SCREW (LOCK ACE) M1.4X1.6 | |
| 185 | 3-389-523-22 | SCREW (LOCK ACE) M1.4X2.5 | |

## 4-4. MECHANISM DECK SECTION 2
## (MT-D7-47)



—36—
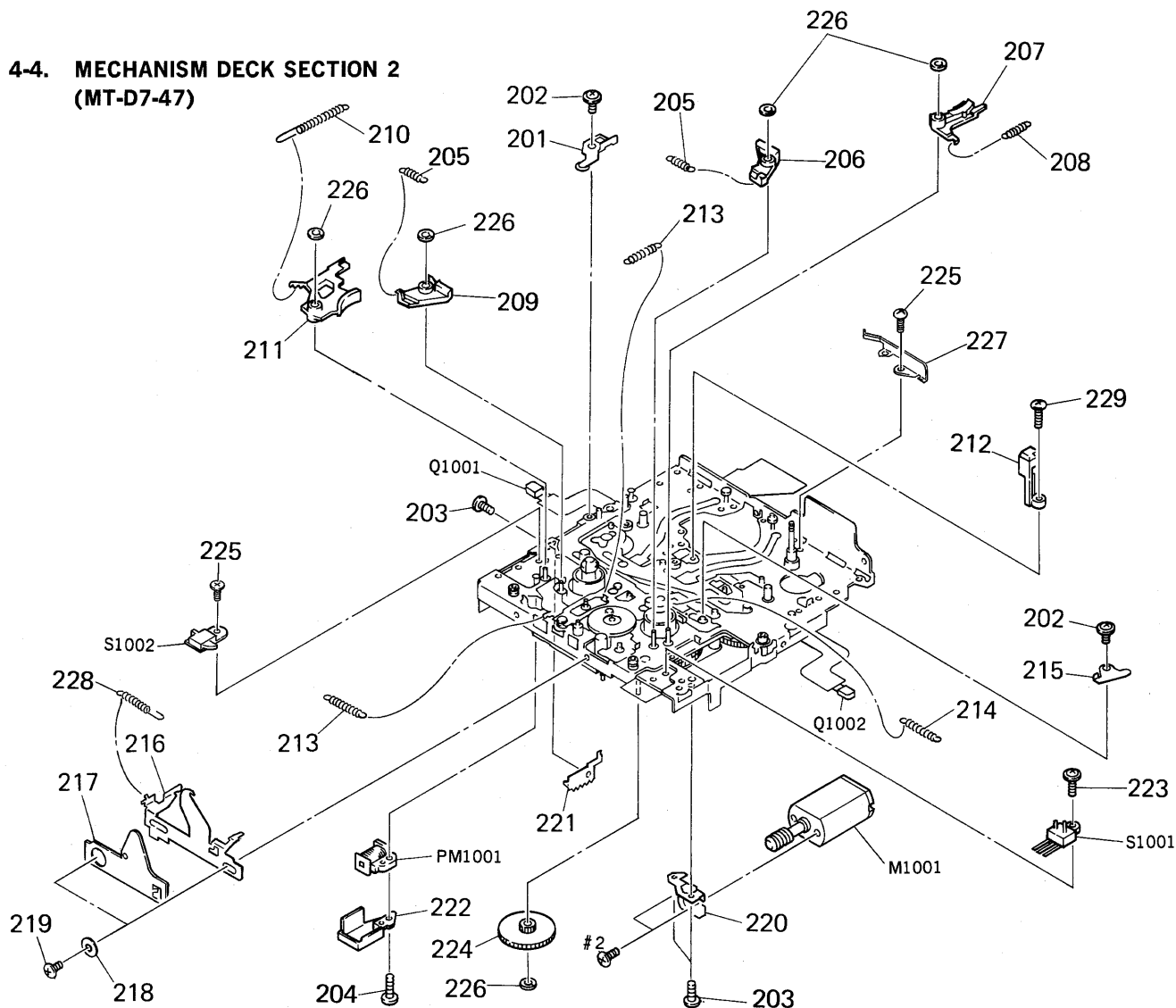
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 201 | X-3344-940-1 | LEVER (TEN-REG B1) ASSY | |
| 201 | X-3362-179-1 | LEVER ASSY | |
| * 201 | X-3362-180-1 | LEVER ASSY | |
| * 201 | X-3362-181-1 | LEVER ASSY | |
| 202 | 3-703-502-91 | SCREW | |
| | | | |
| 203 | 3-389-523-05 | SCREW (LOCK ACE) M1.4X1.4 | |
| 204 | 3-703-502-31 | SCREW | |
| 205 | 3-361-113-01 | SPRING, TENSION | |
| 206 | X-3344-947-1 | LEVER (BRAKE T) ASSY | |
| 207 | X-3344-946-1 | LEVER (BRAKE RBT) ASSY | |
| | | | |
| 208 | 3-361-111-01 | SPRING, TENSION (40g/cm) | |
| 208 | 3-367-610-01 | SPRING, TENSION (35g/cm) | |
| 208 | 3-367-611-01 | SPRING, TENSION (30g/cm) | |
| 208 | 3-369-815-01 | SPRING, TENSION (45g/cm) | |
| 208 | 3-369-816-01 | SPRING, TENSION (49g/cm) | |
| | | | |
| 208 | 3-369-817-01 | SPRING, TENSION (55g/cm) | |
| 209 | X-3344-948-1 | LEVER (BRAKE S) ASSY | |
| 210 | 3-361-112-01 | SPRING, TENSION | |
| 211 | X-3344-949-1 | LEVER (TENSION REGULATOR) ASSY | |
| 212 | 3-360-872-01 | BRACKET (LED) | |
| | | | |
| 213 | 3-361-107-01 | SPRING, TENSION | |
| 214 | 3-361-110-01 | SPRING, TENSION | |
| 215 | X-3344-951-1 | LEVER (R.BT RETURN A) ASSY | |
| * 215 | X-3362-182-1 | LEVER (R.BT RETERN B) ASSY | |
| 215 | X-4941-476-1 | LEVER (R.BT RETURN C) ASSY | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 216 | 3-387-575-01 | LEVER | |
| 217 | 3-387-577-01 | LEVER | |
| 218 | 3-387-568-01 | SHAFT | |
| 219 | 3-704-246-01 | SCREW (P1.4X1.6) | |
| 220 | 3-387-562-01 | BRACKET (MODE MOTOR) | |
| | | | |
| 221 | 3-360-869-01 | BRACKET (BT, SPRING) | |
| 222 | 3-360-882-01 | COVER (SOLENOID) | |
| 223 | 3-703-502-21 | SCREW | |
| 224 | 3-360-829-01 | GEAR (MODE B) | |
| 225 | 3-349-825-01 | SCREW | |
| | | | |
| 226 | 3-315-384-11 | WASHER, STOPPER (T=0.25) | |
| * 227 | 3-388-537-01 | PLATE, GROUND | |
| 228 | 3-387-564-01 | SPRING, TENSION | |
| 229 | 3-389-523-22 | SCREW (LOCK ACE) M1.4X2.5 | |
| M1001 | 1-698-104-11 | MOTOR, DC (WITH GEAR) | |
| | | | |
| PM1001 | 1-454-602-11 | SOLENOID, PLUNGER | |
| Q1001 | 8-729-925-30 | END SENSOR    PT4810F | |
| Q1002 | 8-729-925-30 | END SENSOR    PT4810F | |
| S1001 | 1-571-878-11 | SWITCH, PUSH (2 KEY) (CASSETTE DET/REC PROOF) | |
| S1002 | 1-572-288-11 | SWITCH, PUSH (AC POWER) (1 KEY) (CASSETTE CONTROL LOCK) | |

## 4-5. MECHANISM DECK SECTION 3
### (MT-D7-47)
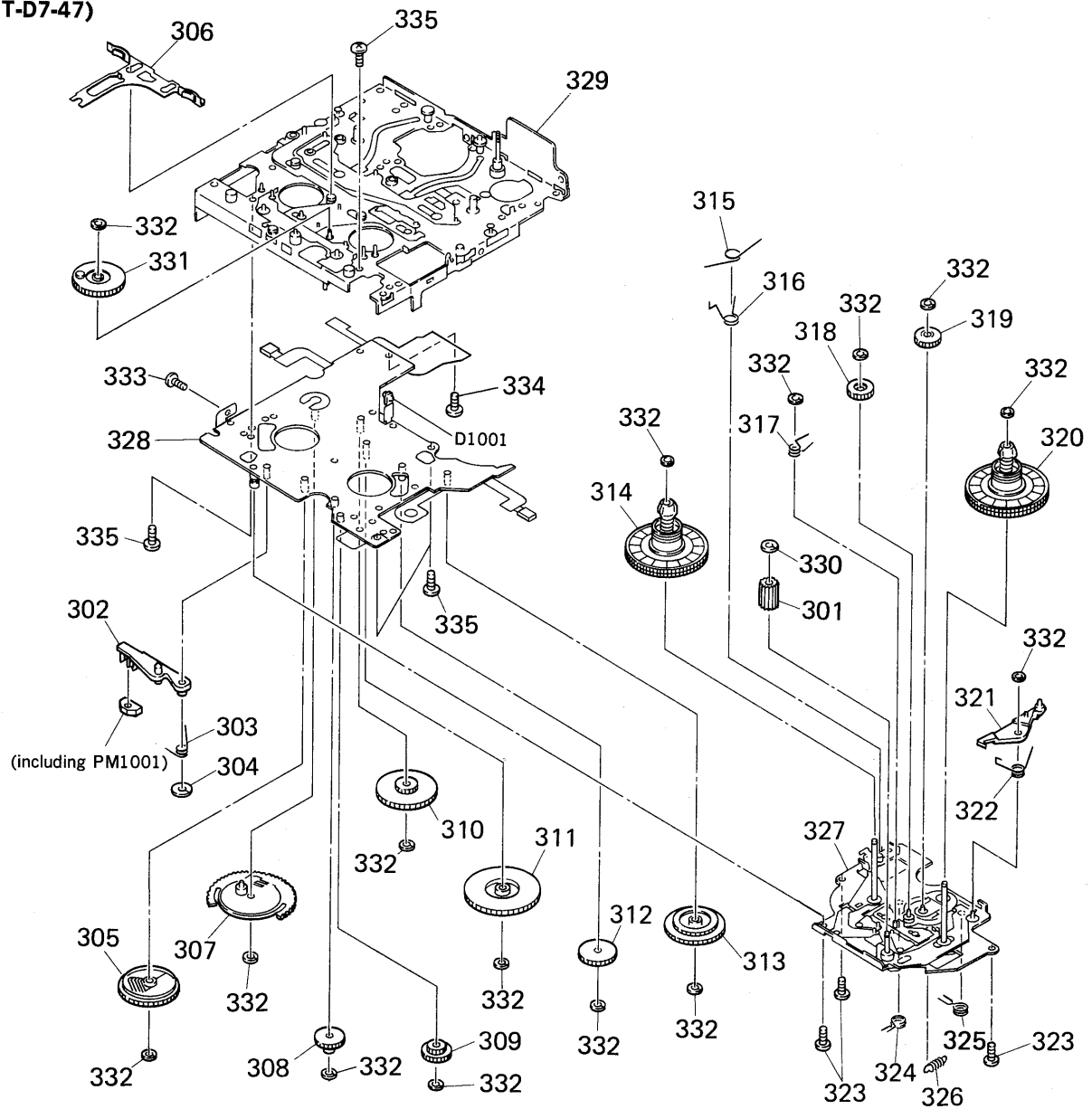


| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 301 | 3-360-831-02 | GEAR (MODE E) | |
| 302 | X-3344-956-3 | LEVER (SOLENOID) ASSY | |
| 303 | 3-361-117-01 | SPRING, TORSION | |
| 304 | 3-311-815-11 | WASHER, POLYETHYLENE | |
| 305 | X-3344-966-3 | GEAR (A) ASSY, CAM | |
| 306 | X-3344-959-1 | LEVER (SOFT BRAKE) ASSY | |
| 307 | X-3344-967-4 | GEAR (LOADING) ASSY | |
| 308 | 3-360-832-02 | GEAR (MODE D) | |
| 309 | 3-360-830-02 | GEAR (MODE C) | |
| 310 | 3-360-828-01 | GEAR (E) | |
| 311 | 3-360-883-02 | GEAR (D) | |
| 312 | 3-360-827-01 | GEAR (C) | |
| 313 | 3-360-824-01 | GEAR (B) | |
| 314 | X-3344-960-4 | TABLE (S) ASSY, REEL | |
| 315 | 3-361-104-01 | SPRING, TORSION | |
| 316 | 3-361-116-03 | SPRING, TORSION | |
| 317 | 3-361-103-11 | SPRING, TORSION | |
| 318 | 3-360-826-02 | GEAR (FF/REW) | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 319 | 3-360-825-01 | GEAR (FR) | |
| 320 | X-3344-961-4 | TABLE (T) ASSY, REEL | |
| 321 | 3-360-849-02 | LEVER (T LOCK) | |
| 322 | 3-361-114-01 | SPRING, TORSION | |
| 323 | 3-703-502-01 | SCREW | |
| 324 | 3-361-102-01 | SPRING, TORSION | |
| 325 | 3-360-896-03 | SPRING, TORSION | |
| 326 | 3-370-921-02 | SPRING, TENSION | |
| 327 | X-3366-477-1 | CHASSIS (REEL) ASSY | |
| 328 | X-4944-047-1 | CHASSIS (SUB) ASSY | |
| * 329 | X-3366-484-1 | CHASSIS (MAIN) ASSY | |
| 330 | 3-321-813-01 | WASHER, COTTER POLYETHYLENE | |
| 331 | 3-360-886-03 | GEAR (B), CAM | |
| 332 | 3-315-384-11 | WASHER, STOPPER (T=0.25) | |
| 333 | 3-349-825-01 | SCREW | |
| 334 | 3-349-825-11 | SCREW | |
| 335 | 3-389-523-05 | SCREW (LOCK ACE) M1.4X1.4 | |
| D1001 | 8-719-988-42 | LED    GL453S | |

# SECTION 5
## ELECTRICAL PARTS LIST

| AT-1 | AT-2 | AT-3 | AT-4 |

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:$\mu$, for example:
  uA ..: $\mu$A..   uPA..: $\mu$PA..
  uPB..: $\mu$PB..  uPC..: $\mu$PC..   uPD..: $\mu$PD..
- CAPACITORS
  uF: $\mu$F
- COILS
  uH: $\mu$H

When indicating parts by reference number, please include the board.

The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- Abbreviations
  JE : Tourist model
  G  : German model

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| * | 1-648-686-11 | AT-1 BOARD | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C1001 | 1-135-318-11 | TANTALUM CHIP | 33uF | | 20% | 4V |
| | | < DIODE > | | | | |
| D1003 | 8-719-975-43 | DIODE | RB420D | | | |
| | | < RESISTOR > | | | | |
| R1001 | 1-216-856-11 | METAL CHIP | 820K | 5% | | 1/16W |
| R1002 | 1-216-821-11 | METAL CHIP | 1K | 5% | | 1/16W |
| R1004 | 1-216-833-11 | METAL CHIP | 10K | 5% | | 1/16W |
| ************************************************************ | | | | | | |
| * | 1-648-687-11 | AT-2 BOARD | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C1002 | 1-162-638-11 | CERAMIC CHIP | 1uF | | | 16V |
| | | < DIODE > | | | | |
| D1001 | 8-719-404-35 | DIODE | MA141WK | | | |
| | | < COIL > | | | | |
| L1001 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | | |
| ************************************************************ | | | | | | |
| * | 1-648-688-11 | AT-3 BOARD | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C562 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | | 50V |
| C2002 | 1-164-234-11 | CERAMIC CHIP | 1uF | | | 10V |
| C2003 | 1-164-234-11 | CERAMIC CHIP | 1uF | | | 10V |
| | | < TRANSISTOR > | | | | |
| Q2001 | 8-729-402-93 | TRANSISTOR | UN5214 | | | |

| Ref.No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | < RESISTOR > | | | | |
| R2001 | 1-216-699-11 | METAL CHIP | 100K | 0.5% | | 1/10W |
| R2002 | 1-216-854-11 | METAL CHIP | 560K | 5% | | 1/16W |
| R2003 | 1-216-845-11 | METAL CHIP | 100K | 5% | | 1/16W |
| ********************************************************************** | | | | | | |
| * | 1-648-689-11 | AT-4 BOARD | | | | |
| | | ********** | | | | |
| | | < CAPACITOR > | | | | |
| C2005 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | | 20% | 10V |
| C2006 | 1-104-849-11 | TANTALUM CHIP | 22uF | | 20% | 6.3V |
| C2007 | 1-104-847-11 | TANTALUM CHIP | 22uF | | 20% | 4V |
| C2008 | 1-164-234-11 | CERAMIC CHIP | 1uF | | | 10V |
| C2009 | 1-164-234-11 | CERAMIC CHIP | 1uF | | | 10V |
| | | < DIODE > | | | | |
| D2001 | 8-719-421-27 | DIODE | MA728 | | | |
| | | < IC > | | | | |
| IC2001 | 8-759-178-44 | IC | RN5VL33AA-T1 | | | |
| | | < TRANSISTOR > | | | | |
| Q2002 | 8-729-402-93 | TRANSISTOR | UN5214 | | | |
| Q2003 | 8-729-402-93 | TRANSISTOR | UN5214 | | | |
| Q2004 | 8-729-402-96 | TRANSISTOR | UN5114 | | | |
| | | < RESISTOR > | | | | |
| R2004 | 1-216-851-11 | METAL CHIP | 330K | 5% | | 1/16W |
| R2005 | 1-216-844-11 | METAL CHIP | 82K | 5% | | 1/16W |
| R2006 | 1-216-837-11 | METAL CHIP | 22K | 5% | | 1/16W |
| R2007 | 1-216-849-11 | METAL CHIP | 220K | 5% | | 1/16W |
| R2008 | 1-216-840-11 | METAL CHIP | 39K | 5% | | 1/16W |
| R2009 | 1-216-844-11 | METAL CHIP | 82K | 5% | | 1/16W |
| ********************************************************************** | | | | | | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | 1-648-722-11 | AT-5 BOARD | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C700 | 1-104-964-11 | ELECT | 470uF | | 10V |
| | ****************************************************************** | | | | |
| | A-3016-354-A | MAIN BOARD, COMPLETE | | | |
| | | (INCLUDING TRANSFORMER BOARD) | | | |
| | | ******************** | | | |
| | 3-387-477-01 | TERMINAL (MAIN), BATTERY | | | |
| | 3-708-377-01 | SLIDER, SURF LOCK (16P) | | | |
| | | < CAPACITOR > | | | |
| C2 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C003 | 1-164-005-11 | CERAMIC CHIP | 0.47uF | | 25V |
| C101 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C102 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C103 | 1-128-019-11 | ELECT CHIP | 6.8uF | | 6.3V |
| C105 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C106 | 1-128-020-11 | ELECT CHIP | 10uF | | 6.3V |
| C107 | 1-162-922-11 | CERAMIC CHIP | 39PF | 5% | 50V |
| C108 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C109 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C110 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C113 | 1-164-161-11 | CERAMIC CHIP | 0.0022uF | 10% | 100V |
| C117 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C118 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C119 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C120 | 1-135-202-21 | TANTALUM CHIP | 22uF | 20% | 4V |
| C121 | 1-164-480-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C122 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C125 | 1-135-202-21 | TANTALUM CHIP | 22uF | 20% | 4V |
| C126 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C128 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C129 | 1-163-022-00 | CERAMIC CHIP | 0.012uF | 10% | 50V |
| C131 | 1-128-014-11 | ELECT CHIP | 10uF | | 4V |
| C134 | 1-104-848-11 | TANTALUM CHIP | 100uF | 20% | 4V |
| C135 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C201 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C202 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C203 | 1-128-019-11 | ELECT CHIP | 6.8uF | | 6.3V |
| C205 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C206 | 1-128-020-11 | ELECT CHIP | 10uF | | 6.3V |
| C207 | 1-162-922-11 | CERAMIC CHIP | 39PF | 5% | 50V |
| C208 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C209 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C210 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C213 | 1-164-161-11 | CERAMIC CHIP | 0.0022uF | 10% | 100V |
| C217 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C218 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C219 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C220 | 1-135-202-21 | TANTALUM CHIP | 22uF | 20% | 4V |
| C221 | 1-164-480-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C222 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C225 | 1-135-202-21 | TANTALUM CHIP | 22uF | 20% | 4V |
| C226 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C228 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C229 | 1-163-022-00 | CERAMIC CHIP | 0.012uF | 10% | 50V |
| C231 | 1-128-014-11 | ELECT CHIP | 10uF | | 4V |
| C234 | 1-104-848-11 | TANTALUM CHIP | 100uF | 20% | 4V |
| C235 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C302 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C303 | 1-135-149-21 | TANTALUM CHIP | 2.2uF | 20% | 10V |
| C304 | 1-135-149-21 | TANTALUM CHIP | 2.2uF | 20% | 10V |
| C305 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C306 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V |
| C307 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C308 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C309 | 1-162-638-11 | CERAMIC CHIP | 1uF | | 16V |
| C310 | 1-124-778-00 | ELECT CHIP | 22uF | 20% | 6.3V |
| C311 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C312 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C313 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C318 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V |
| C319 | 1-126-395-11 | ELECT | 22uF | 20% | 16V |
| C322 | 1-124-778-00 | ELECT CHIP | 22uF | 20% | 6.3V |
| C323 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C324 | 1-124-778-00 | ELECT CHIP | 22uF | 20% | 6.3V |
| C327 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C330 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C331 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C332 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C333 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C334 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C335-337 | | | | | |
| | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C338 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C339 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C340 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C341 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C342 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C343 | 1-135-155-21 | TANTALUM CHIP | 4.7uF | 10% | 16V |
| C344 | 1-135-156-21 | TANTALUM CHIP | 6.8uF | 10% | 10V |
| C345 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C346 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C347 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C348 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C349 | 1-128-014-11 | ELECT CHIP | 10uF | | 4V |
| C361 | 1-135-208-11 | TANTALUM CHIP | 1uF | 20% | 10V |
| C362 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C363 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| | | | | | |
| C364 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C365 | 1-104-851-11 | TANTALUM CHIP | 10uF | 20% | 10V |
| C366 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C367 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C368 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| | | | | | |
| C369 | 1-104-847-91 | TANTALUM CHIP | 22uF | 20% | 4V |
| C370 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C371 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C372 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C373 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| | | | | | |
| C374 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C375 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C376 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C377 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C501 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| | | | | | |
| C502 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C503 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C504 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C505 | 1-104-851-11 | TANTALUM CHIP | 10uF | 20% | 10V |
| C506 | 1-135-208-11 | TANTALUM CHIP | 1uF | 20% | 10V |
| | | | | | |
| C507 | 1-162-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C508 | 1-135-208-11 | TANTALUM CHIP | 1uF | 20% | 10V |
| C509 | 1-162-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C510 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C511 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| | | | | | |
| C513 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C514 | 1-162-967-11 | CERAMIC CHIP | 0.0033uF | 10% | 50V |
| C517 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C518 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C519 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| | | | | | |
| C521-523 | | | | | |
| | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C524 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C525 | 1-104-849-11 | TANTALUM CHIP | 22uF | 20% | 6.3V |
| C526 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C528 | 1-162-960-11 | CERAMIC CHIP | 220PF | 10% | 50V |
| | | | | | |
| C529 | 1-162-960-11 | CERAMIC CHIP | 220PF | 10% | 50V |
| C530 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C532 | 1-162-966-11 | CERAMIC CHIP | 0.0022uF | 10% | 50V |
| C533 | 1-135-208-11 | TANTALUM CHIP | 1uF | 20% | 10V |
| C534 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| | | | | | |
| C535 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C536 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C537 | 1-135-208-11 | TANTALUM CHIP | 1uF | 20% | 10V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C538 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C539 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C540 | 1-104-852-11 | TANTALUM CHIP | 22uF | 20% | 10V |
| C541 | 1-108-851-11 | TANTALUM CHIP | 10uF | 20% | 10V |
| C542 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| | | | | | |
| C543 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C544 | 1-135-208-11 | TANTALUM CHIP | 1uF | 20% | 10V |
| C545 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C546 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C547 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| | | | | | |
| C549-552 | | | | | |
| | 1-127-558-11 | ELECT(SOLID) | 10uF | 20% | 10V |
| C553 | 1-104-852-11 | TANTALUM CHIP | 22uF | 20% | 10V |
| C554 | 1-127-558-11 | ELECT(SOLID) | 10uF | 20% | 10V |
| C557-559 | | | | | |
| C557 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C560 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| | | | | | |
| C561 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C563 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C564 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C565 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C566 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| | | | | | |
| C567 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C568 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C569-571 | | | | | |
| | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C572 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C573 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| | | | | | |
| C574 | 1-162-917-11 | CERAMIC CHIP | 15PF | 5% | 50V |
| C575 | 1-162-917-11 | CERAMIC CHIP | 15PF | 5% | 50V |
| C576 | 1-104-852-11 | TANTALUM CHIP | 22uF | 20% | 10V |
| C577 | 1-135-148-21 | TANTALUM CHIP | 1.5uF | 20% | 10V |
| C578 | 1-162-967-11 | CERAMIC CHIP | 0.0033uF | 10% | 50V |
| | | | | | |
| C579 | 1-104-849-11 | TANTALUM CHIP | 22uF | 20% | 6.3V |
| C580 | 1-162-967-11 | CERAMIC CHIP | 0.0033uF | 10% | 50V |
| C581 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C582 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C583 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| | | | | | |
| C584 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C586 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C587 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C588 | 1-104-755-11 | ELECT | 68uF | 20% | 6.3V |
| C589 | 1-162-967-11 | CERAMIC CHIP | 0.0033uF | 10% | 50V |
| | | | | | |
| C590 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C591 | 1-162-917-11 | CERAMIC CHIP | 15PF | 5% | 50V |
| C592 | 1-162-910-11 | CERAMIC CHIP | 5PF | 0.25PF | 50V |
| C593 | 1-162-910-11 | CERAMIC CHIP | 5PF | 0.25PF | 50V |
| C594 | 1-162-917-11 | CERAMIC CHIP | 15PF | 5% | 50V |
| | | | | | |
| C595 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |

| Ref. No. | Part No. | Description | | | Remark |
|----------|----------|-------------|---|---|--------|
| C596 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C597 | 1-104-851-11 | TANTALUM CHIP | 10uF | 20% | 10V |
| C598 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C599 | 1-135-259-11 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C600 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| | | | | | |
| C601 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C602 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C605 | 1-104-851-11 | TANTALUM CHIP | 10uF | 20% | 10V |
| C606 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C608 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| | | | | | |
| C609 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C610 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C611 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C612 | 1-125-507-11 | DOUBLE LAYERS | 0.22F | | 5.5V |
| C613 | 1-162-966-11 | CERAMIC CHIP | 0.0022uF | 10% | 50V |
| | | | | | |
| C614 | 1-162-966-11 | CERAMIC CHIP | 0.0022uF | 10% | 50V |
| C615 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C616 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C617 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C618 | 1-162-923-11 | CERAMIC CHIP | 47PF | 5% | 50V |
| | | | | | |
| C620 | 1-162-966-11 | CERAMIC CHIP | 0.0022uF | 10% | 50V |
| C621 | 1-162-979-11 | CERAMIC CHIP | 0.0027uF | 10% | 50V |
| C622 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C624 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C627 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| | | | | | |
| C1000 | 1-104-849-11 | TANTALUM CHIP | 22uF | 20% | 6.3V |
| C2001 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |

< CONNECTOR >

| | | | |
|----|----|----|----|
| CN501 | 1-750-374-11 | CONNECTOR, FPC 14P | |
| * CN502 | 1-691-419-11 | HOUSING, CONNECTOR 8P | |
| CN504 | 1-569-530-11 | HOUSING, CONNECTOR 16P | |
| * CN505 | 1-691-798-11 | HOUSING, CONNECTOR 22P | |
| CN507 | 1-750-375-11 | CONNECTOR, FPC 22P | |
| | | | |
| CN508 | 1-750-377-11 | SOCKET, CONNECTOR 7P(REMOTE DIGITAL I/O) | |
| CN509 | 1-750-373-11 | CONNECTOR, FPC 8P | |

< DC/DC CONVERTER UNIT >

CP501 1-467-045-11 CONVERTER UNIT, DC/DC

< DIODE >

| | | | |
|----|----|----|----|
| D102-104 | | | |
| | 8-719-033-14 | LED | CL-170PG-CD-T |
| D202-204 | | | |
| | 8-719-033-14 | LED | CL-170PG-CD-T |
| D301 | 8-719-800-76 | DIODE | 1SS226 |
| D303 | 8-719-975-43 | DIODE | RB420D |
| D331 | 8-719-975-43 | DIODE | RB420D |

| Ref. No. | Part No. | Description | | Remark |
|----------|----------|-------------|---|--------|
| D332 | 8-719-975-43 | DIODE | RB420D | |
| D340 | 8-719-975-43 | DIODE | RB420D | |
| D341 | 8-719-975-43 | DIODE | RB420D | |
| D501-503 | | | | |
| | 8-719-980-38 | DIODE | SB07-03C | |
| D505 | 8-719-404-16 | DIODE | MA713 | |
| | | | | |
| D506-509 | | | | |
| | 8-719-800-76 | DIODE | 1SS226 | |
| D510 | 8-719-026-26 | DIODE | MA786WK | |
| D511 | 8-719-105-91 | DIODE | RD5.6M-B2 | |
| D512 | 8-719-404-35 | DIODE | MA141WK | |
| D515 | 8-719-820-05 | DIODE | 1SS181 | |
| | | | | |
| D516 | 8-719-820-05 | DIODE | 1SS181 | |
| D517 | 8-719-989-73 | DIODE | SB007T03C | |

< IC >

| | | | |
|----|----|----|----|
| IC301 | 8-759-745-64 | IC | NJM4560M |
| IC302 | 8-759-161-76 | IC | TK15021MTL |
| IC303 | 8-759-097-92 | IC | NJM2100V |
| IC304 | 8-759-161-74 | IC | AK5344-VS-E1 |
| IC305 | 8-759-501-41 | IC | SM5840BS |
| | | | |
| IC308 | 8-759-058-41 | IC | NJM3416V |
| IC311 | 8-759-178-41 | IC | PCM68U-J-T1 |
| IC313 | 8-759-161-75 | IC | NJM2112V(TE2) |
| IC314 | 8-759-161-75 | IC | NJM2112V(TE2) |
| IC315 | 8-759-168-90 | IC | TK11245TL |
| | | | |
| IC501 | 8-759-094-01 | IC | MB3796PFV-G-BND-ER |
| IC502 | 8-759-094-02 | IC | CXA8022N |
| IC503 | 8-759-164-58 | IC | MCD002BM-TLM |
| IC504 | 8-759-159-76 | IC | MM1138XQ |
| IC505 | 8-759-168-66 | IC | RH5RE40AA-T1 |
| | | | |
| IC506 | 8-752-843-07 | IC | CXP80524-078R |
| IC507 | 8-759-159-77 | IC | TK10502MT1 |
| IC508 | 8-752-352-24 | IC | CXD2605R |
| IC509 | 8-759-031-84 | IC | SC7S04F |
| IC510 | 8-752-343-47 | IC | CXK58257ATM-12LB |
| | | | |
| IC511 | 8-759-031-84 | IC | SC7S04F |

< TRANSFORMER >

IVT501 1-423-601-11 TRANSFORMER, OSCILLATION

< JACK >

| | | | |
|----|----|----|----|
| J301 | 1-750-369-11 | JACK (MIC) | |
| J302 | 1-750-370-11 | JACK (LINE IN) | |
| J304 | 1-750-372-11 | JACK (PHONES/LINE OUT) | |
| J501 | 1-750-368-11 | JACK, DC(POLARITY UNIFIED TYPE) (DC IN 6V) | |

## MAIN TRANSFORMER

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| | | **< COIL >** | | | | |
| L101-103 | | | | | | |
| | 1-410-997-31 | INDUCTOR CHIP | 2. 2uH | | | |
| L201-203 | | | | | | |
| | 1-410-997-31 | INDUCTOR CHIP | 2. 2uH | | | |
| L301 | 1-412-006-31 | INDUCTOR CHIP | 10uH | | | |
| L305 | 1-410-999-11 | INDUCTOR CHIP | 3. 3uH | | | |
| L306 | 1-410-999-11 | INDUCTOR CHIP | 3. 3uH | | | |
| L307 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| L501 | 1-410-997-31 | INDUCTOR CHIP | 2. 2uH | | | |
| L502 | 1-412-002-31 | INDUCTOR CHIP | 4. 7uH | | | |
| L503 | 1-412-002-31 | INDUCTOR CHIP | 4. 7uH | | | |
| L504 | 1-410-997-31 | INDUCTOR CHIP | 2. 2uH | | | |
| L505 | 1-414-213-21 | INDUCTOR | 100uH | | | |
| L506 | 1-414-214-21 | INDUCTOR | 200uH | | | |
| L507 | 1-412-006-31 | INDUCTOR CHIP | 10uH | | | |
| L508 | 1-410-997-31 | INDUCTOR CHIP | 2. 2uH | | | |
| L509 | 1-410-997-31 | INDUCTOR CHIP | 2. 2uH | | | |
| L510 | 1-410-196-11 | INDUCTOR CHIP | 2. 2uH | | | |
| L511 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| L512 | 1-410-997-31 | INDUCTOR CHIP | 2. 2uH | | | |
| | | **< TRANSISTOR >** | | | | |
| Q001 | 8-729-924-62 | TRANSISTOR | DTC113ZU | | | |
| Q102 | 8-729-400-55 | TRANSISTOR | 2SD1328-S | | | |
| Q106 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | |
| Q202 | 8-729-400-55 | TRANSISTOR | 2SD1328-S | | | |
| Q206 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | |
| Q301 | 8-729-141-48 | TRANSISTOR | 2SB624-BV345 | | | |
| Q302 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | | |
| Q303 | 8-729-402-19 | TRANSISTOR | XN6501 | | | |
| Q304 | 8-729-402-93 | TRANSISTOR | UN5214 | | | |
| Q305 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | | |
| Q306 | 8-729-159-65 | TRANSISTOR | 2SD596-DV5 | | | |
| Q307 | 8-729-900-52 | TRANSISTOR | DTC114YK | | | |
| Q308 | 8-729-425-18 | TRANSISTOR | XN4504 | | | |
| Q309 | 8-729-402-93 | TRANSISTOR | UN5214 | | | |
| Q311 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | |
| Q312 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | | |
| Q313 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | | |
| Q314 | 8-729-402-19 | TRANSISTOR | XN6501 | | | |
| Q316 | 8-729-402-93 | TRANSISTOR | UN5214 | | | |
| Q317 | 8-729-427-83 | TRANSISTOR | XP6501 | | | |
| Q318 | 8-729-427-83 | TRANSISTOR | XP6501 | | | |
| Q331 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | |
| Q332 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | | |
| Q333 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | |
| Q334 | 8-729-230-60 | TRANSISTOR | 2SA1586-YG | | | |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| Q353 | 8-729-230-60 | TRANSISTOR | 2SA1586-YG | | | |
| Q354 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | |
| Q355-357 | | | | | | |
| | 8-729-402-93 | TRANSISTOR | UN5214 | | | |
| Q361 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | | |
| Q362 | 8-729-402-19 | TRANSISTOR | XN6501 | | | |
| Q363 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | | |
| Q364 | 8-729-402-19 | TRANSISTOR | XN6501 | | | |
| Q365 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | |
| Q367 | 8-729-427-83 | TRANSISTOR | XP6501 | | | |
| Q501 | 8-729-820-86 | TRANSISTOR | 2SB1121-ST | | | |
| Q502 | 8-729-820-86 | TRANSISTOR | 2SB1121-ST | | | |
| Q503 | 8-729-422-18 | TRANSISTOR | XN4315 | | | |
| Q504 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | | |
| Q505 | 8-729-015-76 | TRANSISTOR | UN5211 | | | |
| Q508 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | | |
| Q509 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | | | |
| Q512 | 8-729-015-74 | TRANSISTOR | UN5111 | | | |
| Q513 | 8-729-120-28 | TRANSISTOR | 2SC1623-L5L6 | | | |
| Q514 | 8-729-140-75 | TRANSISTOR | 2SD999-CLCK | | | |
| Q515 | 8-729-805-26 | TRANSISTOR | 2SB1121-T | | | |
| Q516 | 8-729-402-45 | TRANSISTOR | UN5212 | | | |
| Q518 | 8-729-924-62 | TRANSISTOR | DTC113ZU | | | |
| Q519 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | | |
| | | **< RESISTOR >** | | | | |
| R001 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W | |
| R101 | 1-216-830-11 | METAL CHIP | 5. 6K | 5% | 1/16W | |
| R102 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W | |
| R103 | 1-218-740-11 | METAL CHIP | 100K | 0. 50% | 1/16W | |
| R104 | 1-218-716-11 | METAL CHIP | 10K | 0. 50% | 1/16W | |
| R105 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W | |
| R106 | 1-216-830-11 | METAL CHIP | 5. 6K | 5% | 1/16W | |
| R108 | 1-218-724-11 | METAL CHIP | 22K | 0. 50% | 1/16W | |
| R109 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W | |
| R110 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W | |
| R111 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W | |
| R113 | 1-218-736-11 | METAL CHIP | 68K | 0. 50% | 1/16W | |
| R115 | 1-218-716-11 | METAL CHIP | 10K | 0. 50% | 1/16W | |
| R116 | 1-218-716-11 | METAL CHIP | 10K | 0. 50% | 1/16W | |
| R117-119 | | | | | | |
| | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W | |
| R120 | 1-216-822-11 | METAL CHIP | 1. 2K | 5% | 1/16W | |
| R121 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W | |
| R122 | 1-218-672-11 | METAL CHIP | 150 | 0. 50% | 1/16W | |
| R123 | 1-218-672-11 | METAL CHIP | 150 | 0. 50% | 1/16W | |
| R127 | 1-216-804-11 | METAL CHIP | 39 | 5% | 1/16W | |
| R129 | 1-218-724-11 | METAL CHIP | 22K | 0. 50% | 1/16W | |
| R130 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W | |

| Ref. No. | Part No. | Description | | | Remark |
|----------|----------|-------------|---|---|--------|
| R132 | 1-216-802-11 | METAL GLAZE | 27 | 5% | 1/16W |
| R133 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |
| R136 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R137 | 1-218-295-11 | METAL CHIP | 5.6K | 0.50% | 1/16W |
| R138 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R140 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R141 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R151 | 1-218-670-11 | METAL CHIP | 120 | 0.50% | 1/16W |
| R152 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R153 | 1-218-484-11 | METAL CHIP | 750 | 0.50% | 1/16W |
| R155 | 1-218-695-11 | METAL CHIP | 1.3K | 0.50% | 1/16W |
| R156 | 1-216-804-11 | METAL CHIP | 39 | 5% | 1/16W |
| R157 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R158 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R159 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R160 | 1-218-700-11 | METAL CHIP | 2.2K | 0.50% | 1/16W |
| R162 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R164 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R173 | 1-216-699-11 | METAL CHIP | 100K | 0.5% | 1/10W |
| R174 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R177 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R178 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R179 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R180 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R181 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R201 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R202 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R203 | 1-218-740-11 | METAL CHIP | 100K | 0.50% | 1/16W |
| R204 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R205 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R206 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R208 | 1-218-724-11 | METAL CHIP | 22K | 0.50% | 1/16W |
| R209 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R210 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R211 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R213 | 1-218-736-11 | METAL CHIP | 68K | 0.50% | 1/16W |
| R215 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R216 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R217-219 | | | | | |
| | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R220 | 1-216-822-11 | METAL CHIP | 1.2K | 5% | 1/16W |
| R221 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R222 | 1-218-672-11 | METAL CHIP | 150 | 0.50% | 1/16W |
| R223 | 1-218-672-11 | METAL CHIP | 150 | 0.50% | 1/16W |
| R227 | 1-216-804-11 | METAL CHIP | 39 | 5% | 1/16W |
| R229 | 1-218-724-11 | METAL CHIP | 22K | 0.50% | 1/16W |
| R230 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R232 | 1-216-802-11 | METAL GLAZE | 27 | 5% | 1/16W |
| R233 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |

| Ref. No. | Part No. | Description | | | Remark |
|----------|----------|-------------|---|---|--------|
| R236 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R237 | 1-218-295-11 | METAL CHIP | 5.6K | 0.50% | 1/16W |
| R238 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R240 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R241 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R251 | 1-218-670-11 | METAL CHIP | 120 | 0.50% | 1/16W |
| R252 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R253 | 1-218-484-11 | METAL CHIP | 750 | 0.50% | 1/16W |
| R255 | 1-218-695-11 | METAL CHIP | 1.3K | 0.50% | 1/16W |
| R256 | 1-216-804-11 | METAL CHIP | 39 | 5% | 1/16W |
| R257 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R258 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R259 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R260 | 1-218-700-11 | METAL CHIP | 2.2K | 0.50% | 1/16W |
| R262 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R264 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R273 | 1-216-699-11 | METAL CHIP | 100K | 0.5% | 1/10W |
| R274 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R277 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R278 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R279 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R280 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R281 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R301 | 1-216-815-11 | METAL CHIP | 330 | 5% | 1/16W |
| R304 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R305 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R306 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R307 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R308 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R309 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R310 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R312 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R313 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R314 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R315 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R316 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R317 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R318 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R319 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R320 | 1-216-851-11 | METAL CHIP | 330K | 5% | 1/16W |
| R321 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R322 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R324 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R327 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| R330 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R331 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R332 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R334 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R336 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R337 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W |
| R338 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R342 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R343 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |
| R344 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| | | | | | |
| R351 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R352 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R354 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R355 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R356 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| | | | | | |
| R358 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R359 | 1-216-857-11 | METAL CHIP | 1M | 5% | 1/16W |
| R360 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R361 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R365 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W |
| | | | | | |
| R366 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R371 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R372 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R373 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R374 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| | | | | | |
| R375 | 1-216-857-11 | METAL CHIP | 1M | 5% | 1/16W |
| R376 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R377 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R378 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R379 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| | | | | | |
| R380 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |
| R381 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R382 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R383 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R384 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |
| | | | | | |
| R385 | 1-216-823-11 | METAL CHIP | 1.5K | 5% | 1/16W |
| R386 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R387 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R389 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R390 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| | | | | | |
| R392 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R393 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R395 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R396 | 1-218-295-11 | METAL CHIP | 5.6K | 0.50% | 1/16W |
| R501 | 1-216-794-11 | METAL CHIP | 5.6 | 5% | 1/16W |
| | | | | | |
| R502 | 1-216-828-11 | METAL CHIP | 3.9K | 5% | 1/16W |
| R503 | 1-216-813-11 | METAL CHIP | 220 | 5% | 1/16W |
| R504 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R505 | 1-216-794-11 | METAL CHIP | 5.6 | 5% | 1/16W |
| R506 | 1-216-794-11 | METAL CHIP | 5.6 | 5% | 1/16W |
| | | | | | |
| R508 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R509 | 1-216-811-11 | METAL CHIP | 150 | 5% | 1/16W |
| R510 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R511 | 1-216-840-11 | METAL CHIP | 39K | 5% | 1/16W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R512-514 | | | | | |
| | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R516 | 1-216-023-00 | METAL CHIP | 82 | 5% | 1/10W |
| R517 | 1-216-813-11 | METAL CHIP | 220 | 5% | 1/16W |
| R518 | 1-217-806-11 | METAL GLAZE | 1 | 5% | 1/8W |
| R519 | 1-217-806-11 | METAL GLAZE | 1 | 5% | 1/8W |
| | | | | | |
| R520 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R521 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R522 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R523 | 1-216-832-11 | METAL CHIP | 8.2K | 5% | 1/16W |
| R524 | 1-216-828-11 | METAL CHIP | 3.9K | 5% | 1/16W |
| | | | | | |
| R525 | 1-216-844-11 | METAL CHIP | 82K | 5% | 1/16W |
| R526 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R527 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R528 | 1-216-826-11 | METAL CHIP | 2.7K | 5% | 1/16W |
| R529 | 1-218-734-11 | METAL CHIP | 56K | 0.50% | 1/16W |
| | | | | | |
| R530 | 1-216-826-11 | METAL CHIP | 2.7K | 5% | 1/16W |
| R531 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R533 | 1-218-748-11 | METAL CHIP | 220K | 0.50% | 1/16W |
| R534 | 1-218-748-11 | METAL CHIP | 220K | 0.50% | 1/16W |
| R535 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| | | | | | |
| R536 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R538 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R539 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R540-542 | | | | | |
| | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R544 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| | | | | | |
| R545 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/16W |
| R546 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R547 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R548 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R549 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| | | | | | |
| R550 | 1-216-174-00 | METAL GLAZE | 100 | 5% | 1/8W |
| R551 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R552 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R553 | 1-218-676-11 | METAL CHIP | 220 | 0.50% | 1/16W |
| R554 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| | | | | | |
| R555 | 1-216-811-11 | METAL CHIP | 150 | 5% | 1/16W |
| R556 | 1-216-818-11 | METAL CHIP | 560 | 5% | 1/16W |
| R557 | 1-216-818-11 | METAL CHIP | 560 | 5% | 1/16W |
| R558 | 1-218-676-11 | METAL CHIP | 220 | 0.50% | 1/16W |
| R559 | 1-218-740-11 | METAL CHIP | 100K | 0.50% | 1/16W |
| | | | | | |
| R560 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R561 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R562 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R563 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R564 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| | | | | | |
| R565 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R566 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |

| Ref. No. | Part No. | Description | | | Remark |
|----------|----------|-------------|---|---|--------|
| R567 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R568 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R569 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R570-572 | | | | | |
| | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R573 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| | | | | | |
| R574 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R575 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R576 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R577 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R578 | 1-216-842-11 | METAL CHIP | 56K | 5% | 1/16W |
| | | | | | |
| R579 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/16W |
| R580 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/16W |
| R581 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R582 | 1-216-794-11 | METAL CHIP | 5.6 | 5% | 1/16W |
| R583 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| | | | | | |
| R584 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R585 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R586 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R587 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R588 | 1-216-819-11 | METAL CHIP | 680 | 5% | 1/16W |
| | | | | | |
| R589 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R590 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R591 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V |
| R592 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R593 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| | | | | | |
| R596-598 | | | | | |
| | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R599 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R600 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R601 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R602 | 1-216-812-11 | METAL CHIP | 180 | 5% | 1/16W |
| | | | | | |
| R603-607 | | | | | |
| | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R608 | 1-216-816-11 | METAL CHIP | 390 | 5% | 1/16W |
| R609 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R610 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R611 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/16W |
| | | | | | |
| R614 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |

< VARIABLE RESISTOR >

| | | | |
|---|---|---|---|
| RV301 | 1-223-361-11 | RES, VAR, CARBON 20K/20K (REC LEVEL) | |
| RV501 | 1-238-667-21 | RES, ADJ, CERMET 100K | |

< SWITCH >

| | | |
|---|---|---|
| S301 | 1-571-277-11 | SWITCH, SLIDE (MIC SENS) |
| S302 | 1-571-506-11 | SWITCH, SLIDE (REC MODE) |
| S501 | 1-571-275-31 | SWITCH, SLIDE (SP/LP) |

| Ref. No. | Part No. | Description | | | Remark |
|----------|----------|-------------|---|---|--------|
| | | < VIBRATOR > | | | |
| | | | | | |
| X501 | 1-579-924-21 | VIBRATOR, CRYSTAL (CHIP TYPE) (9.408MHz) | | | |
| X502 | 1-579-924-21 | VIBRATOR, CRYSTAL (CHIP TYPE) (9.408MHz) | | | |
| X503 | 1-579-923-21 | VIBRATOR, CRYSTAL (CHIP TYPE) | | | |
| | | (22.5792MHz) | | | |
| X504 | 1-579-922-21 | VIBRATOR, CRYSTAL (CHIP TYPE) | | | |
| | | (24.576MHz) | | | |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

| | | | |
|---|---|---|---|
| * | 1-648-989-11 | STOP BOARD | |

\*\*\*\*\*\*\*\*\*\*

< CAPACITOR >

| | | | | | |
|---|---|---|---|---|---|
| C3001 | 1-135-148-21 | TANTALUM CHIP | 1.5uF | 20% | 10V |

< TRANSISTOR >

| | | | |
|---|---|---|---|
| Q3001 | 8-729-420-50 | TRANSISTOR | UN5215 |

< RESISTOR >

| | | | | | |
|---|---|---|---|---|---|
| R3001 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R3002 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

MISCELLANEOUS

\*\*\*\*\*\*\*\*\*\*\*\*\*

| | | |
|---|---|---|
| 6 | 1-467-043-11 | PC BOARD UNIT, SYSTEM CONTROL |
| 25 | 1-467-044-11 | SWITCH UNIT (BLOCK TYPE) |
| 154 | X-4943-984-1 | DRUM ASSY (INCUDING RF UNIT) |
| 180 | 8-835-495-01 | MOTOR, DC SCR-0201A |
| D1001 | 8-719-988-42 | LED    GL453S |
| M1001 | 1-698-104-11 | MOTOR, DC (WITH GEAR) |
| | | |
| PM1001 | 1-454-602-11 | SOLENOID, PLUNGER |
| Q1001 | 8-729-925-30 | END SENSOR    PT4810F |
| Q1002 | 8-729-925-30 | END SENSOR    PT4810F |
| S1001 | 1-571-878-11 | SWITCH, PUSH (2 KEY) (CASSETTE DET/REC PROOF) |
| S1002 | 1-572-288-11 | SWITCH, PUSH (AC POWER) (1 KEY) (CASSETTE CONTROL LOCK) |

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

| Ref. No. | Part No. | Description | Remark |
|----------|----------|-------------|--------|

ACCESSORIES & PACKING MATERIALS
******************************

| ⚠ | 1-466-777-11 | ADAPTOR, AC (AC-E60L) (AEP) | |
| | 1-467-063-11 | REMOTE COMMANDER (RMT-D7) (JE) | |
| ⚠ | 1-467-064-11 | ADAPTOR, AC (AC-E60AM) (JE) | |
| ⚠ | 1-569-007-11 | ADAPTER, CONVERSION 2P (JE) | |
| | 1-590-161-11 | CORD, CONNECTION (JE) | |
| | 1-590-264-11 | CABLE, OPTICAL DIGITAL (AEP, JE) | |
| * | 3-387-733-01 | INDIVIDUAL CARTON (JE) | |
| | 3-388-826-01 | CASE, CARRYING | |
| | 3-756-633-01 | MANUAL, INSTRUCTION (JAPANESE) (JE) | |
| | 3-756-633-11 | MANUAL, INSTRUCTION (ENGLISH, FRENCH, SPANISH) (Canadian, AEP, G, JE) | |
| | 3-756-633-21 | MANUAL, INSTRUCTION (ENGLISH) (US) | |
| | 3-756-633-41 | MANUAL, INSTRUCTION (GERMAN, DUTCH, ITALIAN) (AEP, G) | |
| | 3-756-633-51 | MANUAL, INSTRUCTION (PORTUGUESE, SWEDISH, KOREAN) (AEP, G, JE) | |
| * | 4-960-131-01 | INDIVIDUAL CARTON (US, Canadian) | |
| * | 4-960-132-01 | INDIVIDUAL CARTON (G) | |
| * | 4-960-134-01 | INDIVIDUAL CARTON (AEP) | |

*****************************************************************

**************************
**HARDWARE LIST**
**************************

| #1 | 7-627-451-57 | SCREW, PRECISION +K 1.4X4 | |
| #2 | 7-627-551-47 | SCREW, PRECISION +P 1.4X1.4 | |

| The components identified by mark ⚠ or dotted line with mark. ⚠ are critical for safety. Replace only with part number specified. | Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié. |
|---|---|

# TCD-D7/D7K

## SONY®
# SERVICE MANUAL

## SUPPLEMENT-1

File This Supplement with Service Manual.

# SECTION 1-1
# ADJUSTMENTS

## NOTES FOR ADJUSTMENT

1. The adjustments should be performed in sequence that they are described.

2. Use the following test tapes:
   TY-7111 (8-909-812-00) for level
   TY-7915 (8-913-932-00) for tape path and SWP
   TY-30B (8-892-358-00) blank tape
   Use the following torque meter:
   TW-7131 (8-909-708-71) for FWD and back tension

3. Set the switch and control to the following positions:
   LP/SP (S501) ······SP
   HOLD (S704) ·····Released side (in the opposite of → position)

4. Apply 6.0Vdc from the DC IN jack as power supply.

5. For cleaning of the drum, use the chamois leather (2-034-697-00) or four folds of cloth (knitted fabric) wetted with a little amount of alcohol and lightly apply it onto the drum. Then rotate the drum counterclockwise (two to three turns) to clean it.

## TEST MODE

1. Enter the Test Mode before performing adjustment.

2. With the power ON, simultaneously press the STOP key, COUNTER key and OPEN button on the set to enter Test Mode. Turn the power OFF to release the Test Mode.

3. When the Test Mode is set, the LCD back light will be lit and the following initial display will appear. Also, the mechanism will be put in the loading state and the segments of the Selected Test Mode Code on the LCD display will be flashing (continuously).

   LCD Initial Display

   ```
   ┌──────────────────────────────┐
   │ □□      ⌐ │ │   □□           │
   │ └┘A-TIME  │□│ │  └┘           │
   └──────────────────────────────┘
   ```
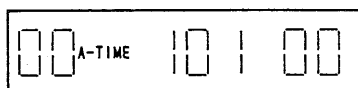
**Note:** During the Test Mode, each key on the set is available to operate it. In this case, malfunction may occur, but it will be released by pressing ■ key on the set. Also, this malfunction will not cause any damage to tape.

4. Types of Test Modes

| Test Mode Code | Contents |
|---|---|
| 01 | Normal operation mode |
| 02 | Error rate measurement mode |
| 30 | End sensor check mode |
| 40 | Mechanism single operation mode |
| 41 | Constant voltage drive mode |
| 42 | Tape path adjustment mode |

—2—

5. Setting of Test Mode Code (remote commander MDR-ED7 is required.)

● Test Mode Display



**Note :** During the Test Mode, the display is switched by pressing the COUNTER key on the set. Select the Absolute Time display ( " A-TIME " illuminated) to check the current Test Mode.

Set Test Mode Code ·················Segments illuminated.

Selected Test Mode Code ··········Segments flashing.

Capstan speed code ················Capstan speed displayed in test codes 40 and 42.

Error code ·······················Segments displayed in case of emergency in test mode.

1) Each time ▶▶ key on remote commander is pressed, the segment value of the Selected Test Mode Code changes as follows :

01 ⟶ 02 ⟶ 30 ⟶ 40 ⟶ 41 ⟶ 42
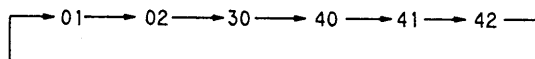
2) Each time ◀◀ key on remote commander is pressed, the segment value of the Selected Test Mode Code changes is reverse order from the above order.

42 ⟶ 41 ⟶ 40 ⟶ 30 ⟶ 02 ⟶ 01
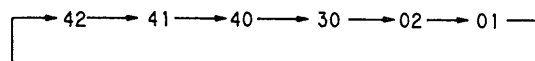
3) Set the Test Mode Code by pressing ▶ key on remote commander. (After this setting is completed, the Selected Test Mode Code is flashing.)

6. Description of Test Mode Codes

01······Normal operation mode

This mode produces the same state as the state of the set where the Test Mode is not entered. However, malfunction may occur. So when checking the set in normal operation, do without entering the Test Mode.

02······Error rate measurement mode

An error rate counter is needed to measure the error rate. Therefore, this mode is not used for servicing.

30······End sensor check mode

This mode is not available in this adjustment.

40⋯⋯Mechanism single operation mode

This mode is available whether tape is present or not.

Without tape, tape end and reel error detections are not performed but holder lock detection is performed.

With FF/REW and ×25FWD/×25REV selected, constant voltage drive is activated without tape while servo is activated with tape.

Press VOL (+) key on remote commander.⋯⋯⋯ 
(FWD mode)

```
┌─→ X0.5 ─→ X1 ─→ X1.5 ─→ X3 ─→ X25 ─→ X8 ─┐
└────────────────────────────────────────┘
```

Press VOL (−) key on remote commander.⋯⋯⋯ 
(REV mode)

```
┌─→ X0.5 ─→ X1 ─→ X1.5 ─→ X3 ─→ X25 ─→ X8 ─┐
└────────────────────────────────────────┘
```
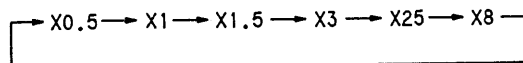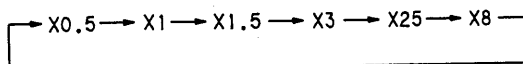
| Capstan Speed Code Display | Capstan Speed | Drum Speed |
|---|---|---|
| 1 | ×0.5FWD | 1000rpm |
| 2 | ×1FWD | 2000rpm |
| 3 | ×1.5FWD | 2000rpm |
| 4 | ×3FWD | 2000rpm |
| 5 | ×25FWD | 2000rpm |
| 6 | ×8FWD | 2000rpm |
| −1 | ×0.5REV | 1000rpm |
| −2 | ×1REV | 2000rpm |
| −3 | ×1.5REV | 2000rpm |
| −4 | ×3REV | 2000rpm |
| −5 | ×25REV | 2000rpm |
| −6 | ×8REV | 2000rpm |

**Note:** In this mode, when tape is run with ▶ key on the set, even if the capstan speed code display is 1, the capstan speed will be set to ×1FWD.

In this case, use VOL key on remote commander to change the speed, then press ▶ key on the remote commander.

41⋯⋯Constant voltage drive mode

In this mode, pressing ▶ key will cause the drum and the capstan to be driven at a constant voltage.

42⋯⋯Tape path adjustment mode

This mode displays the capstan speed and it is effective only when tape is mounted.

Press VOL (+) key on remote commander.⋯⋯⋯ 
(FWD mode)

```
┌─→ X1 ─→ X3 ─→ X8 ─┐
└──────────────────┘
```

Press VOL (−) key on remote commander.⋯⋯⋯ 
(REV mode)

```
┌─→ X1 ─→ X3 ─→ X8 ─┐
└──────────────────┘
```
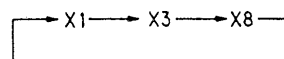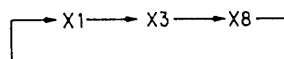
| Capstan Speed Code Display | Capstan Speed | Drum Speed |
|---|---|---|
| 1 | ×1FWD | 2000rpm |
| 2 | ×3FWD | 2000rpm |
| 3 | ×8FWD | 2000rpm |
| −1 | ×1REV | 2000rpm |
| −2 | ×3REV | 2000rpm |
| −3 | ×8REV | 2000rpm |

7. Error Code List

| Code No. | Block | Contents |
|---|---|---|
| 00 | | No error (no emergency) |
| 01-09 | Control motor (encoder) | Unable to detect the position*1 |
| 10 | Mechanism deck | Loading not completed |
| 11 | | Unloading not completed |
| 12 | | No eject |
| 13 | | End sensor fault (T side)*2 |
| 14 | | End sensor fault (S side)*2 |
| 15 | | DEW detected*2 |
| 20 | Drum | Drum motor won't rotate |
| 21 | | Drum servo not locked*2 |
| 30 | Capstan | Capstan motor won't rotate |
| 31 | | Speed not locked |
| 40 | Reel | T reel FG not detected |
| 41 | | S reel FG not detected |
| 42 | | Measure abnormally ended |

* 1 If the position of the rotary encoder is not detected, the position number for that position is preceded with 0 and this value is displayed as the error code. (See below)

| | | | | | |
|---|---|---|---|---|---|
| EJECT | : 01 | Load | : 04 | FF | : 07 |
| Unload | : 02 | REV | : 05 | STOP | : 08 |
| CASIN | : 03 | FWD | : 06 | REW | : 09 |

If an emergency occurs during each test mode, the error code will be displayed.

* 2 Displayed only during the Test Mode.

## LOCATIONS OF PARTS ASSOCIATED WITH ADJUSTMENTS
## —MECHANISM—                                          —MAIN BOARD—

SG1 guide   TG1 guide   Fixed guide

Drum assembly

Tension coil spring   Lever (tension regulator)

A   B

TP (RF)   TP (DFG)   TP (CFG)

CN501   CN507

IC304   IC503

IC506   IC508

TP (SWP)   RV501
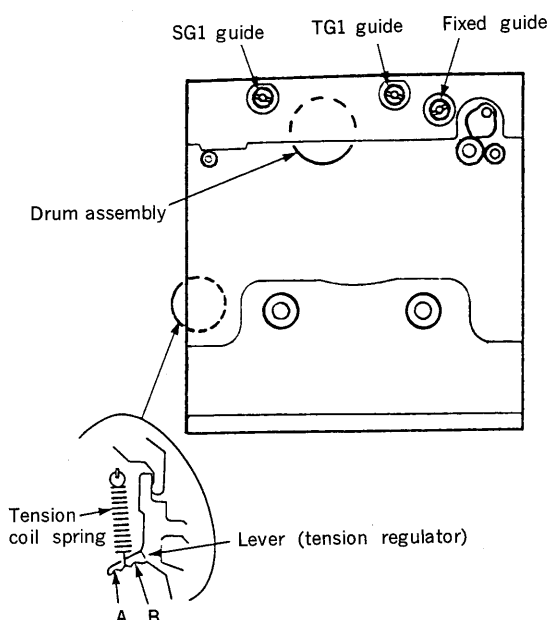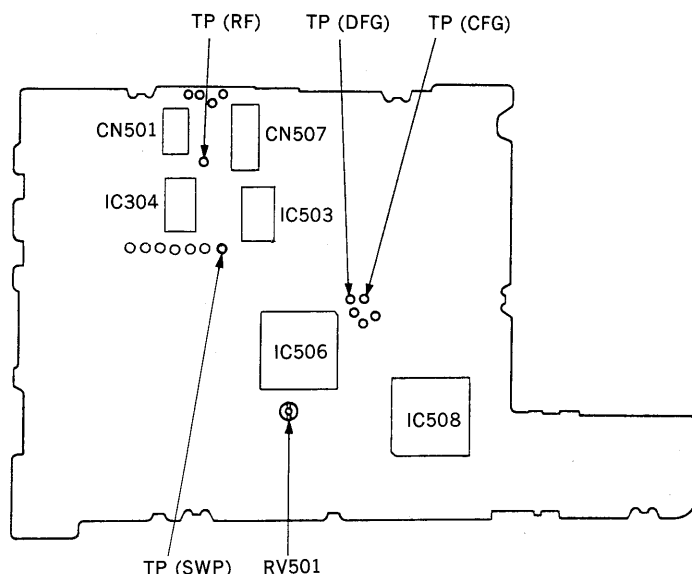
# SECTION 1-2
# MECHANICAL ADJUSTMENTS

These adjustment should be always performed when the drum was replaced.

## TAPE PATH ADJUSTMENT

—RF WAVEFORM—

※ Only when checking the tape path, perform Items 6 to 9.

1.  Enter the Test Mode, mount test TY-7915, and set tape near the center.

2.  Set test mode code 42 and press VOL (+) key on remote commander. (×1FWD)

3.  Lower SG1 guide (clockwise) and dislodge tape (Fig-1).

4.  Lower TG1 guide (clockwise) and dislodge tape (Fig-2). Then, turn TG1 guide counterclockwise and adjust so that the right edge of the RF waveform (Fig-3) is at right angle.

5.  Turn SG1 guide counterclockwise and adjust so that the left edge of the RF waveform (Fig-4) is at right angle.

Dislodge   (Fig-1)

Dislodge   (Fig-2)

(Fig-3)

(Fig-4)

At this time, the lower flange of fixed guide should not be in contact with tape.
Also, tape should run along the upper flanges of SG1 and TG1 guides.

Tape

Upper flange

Lower flange

Lower flange

There must be space.

Fixed guide
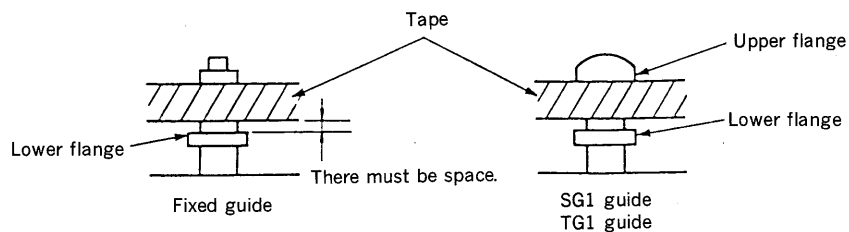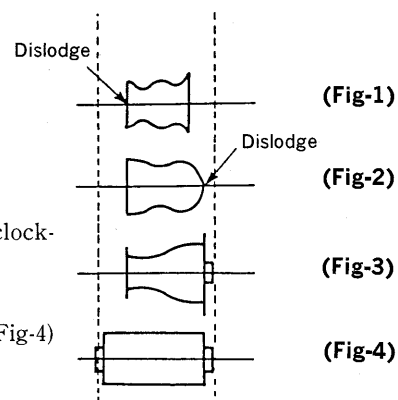
SG1 guide
TG1 guide

6. Check the RF waveform and fine adjust SG1 and TG1 guides.



**(Fig-5)**

**(Fig-6)** NG 4/5 A or less
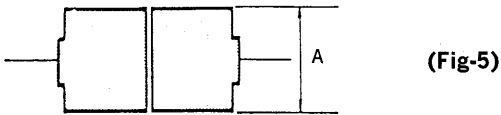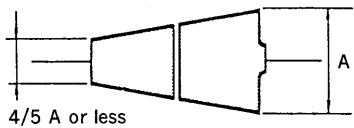
⇨ Fine adjust SG1 guide so as to obtain the waveform as shown in Fig-5.

**(Fig-7)** NG 4/5 A or less
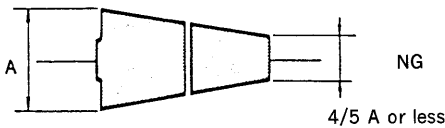
⇨ Fine adjust TG1 guide so as to obtain the waveform as shown in Fig-5.

**Note :** SG1 guide and TG1 guide should not be adjusted alternately. After one guide has been adjusted, the other guide should be adjusted.

7. 1) Press STOP button, then press OPEN button to take out tape once.
   2) Mount tape again and press VOL (+) key on remote commander to select ×1FWD.
   3) Check the peak value and width of variation of the RF waveform.



120mV or more    4/5 B or more    B
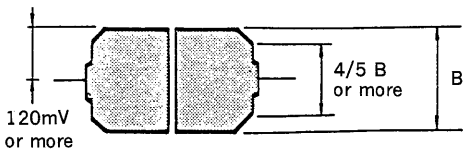
   4) If the RF waveform does not satisfy the check values, repeat Items 6 to 7.

8. Press VOL (+) or VOL (−) key on remote commander to select ×1FWD or ×1REV.
   Adjust the fixed guide so that the lower flange of the guide is positioned along tape. (No tape curl should be present.)



Tape
Lower flange
Fixed guide
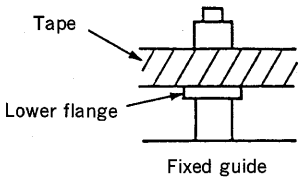
9. After performing ×8FWD, ×8REV, ×3FWD, and ×3REV operations, confirm that the RF waveform is state.

## TORQUE CHECK

Preparation:

Remove the cassette lid from the cassette holder.

(×1FWD)

1.  Set the Test Mode.

2.  Set test mode code 40.

3.  Mount torque meter TW-7131.

4.  Press VOL (+) key on remote commander to select ×1FWD mode.

5.  Check the torque meter.

    FWD take-up torque   4.5—7.0g•cm
                         (0.063—0.097oz•inch)
    FWD back tension     3.0—5.5g•cm
                         (0.042—0.076oz•inch)

6.  If the back tension check value is not satisfied, place the tension coil spring set to the lever (tension regulator) to position either A or B. Check the back tension again.

(×1REV)

1.  Perform the above items 1 to 3.

2.  Press VOL (−) key on remote commander to select ×1REV mode.

3.  Check the torque meter.

    REV take-up torque   5.5—11.0g•cm
                         (0.077—0.152oz•inch)
    REV back tension     6.0—12.0g•cm
                         (0.084—0.166oz•inch)

## SPEED CHECK

(Capstan FG)

1.  Connect frequency counter to TP CFG.

2.  Set the Test Mode.

3.  Set test mode code 40.

4.  Mount test tape TY-30B.

5.  Press VOL (+) key on remote commander and read the frequency in ×0.5FWD, ×1FWD, ×1.5FWD, ×3FWD, and ×8FWD modes.

| Mode | Frequency |
|---|---|
| ×0.5FWD | 296Hz±5Hz |
| ×1FWD | 592Hz±5Hz |
| ×1.5FWD | 888Hz±3Hz |
| ×3FWD | 1776Hz±3Hz |
| ×8FWD | 4736Hz±5Hz |

(Drum FG)

1.  Connect frequency counter to TP DFG.

2.  Perform the above Items 2 to 4.

3.  Press VOL (−) key on remote commander and check the frequency in ×0.5FWD and ×1FWD.

| Mode | Frequency |
|---|---|
| ×0.5FWD | 400Hz±1Hz |
| ×1FWD | 800Hz±1Hz |

# SECTION 1-3
# ELECTRICAL ADJUSTMENTS

These adjustment should be always performed when the drum was replaced.

**SWP (SWITCHING PULSE) ADJUSTMENT**

Preparation : Oscilloscope   CH-1   : AC 100mV/DIV
                             CH-2   : DC 2V/DIV
                             TRIG  : CH-2

1.   Connect CH-1 of oscilloscope to TP RF and CH-2 to TP SWP.

2.   Set the Test Mode.

3.   Set test mode code <u>42</u>.

4.   Mount test tape TY-7915.

5.   Press VOL (+) key on remote commander to select ×1FWD.

6.   Use RV501 to adjust the period (T) between SWP waveform and RF waveform.

CH-1
(RF)

CH-2
(SWP)            T=1300μsec±30μsec

T
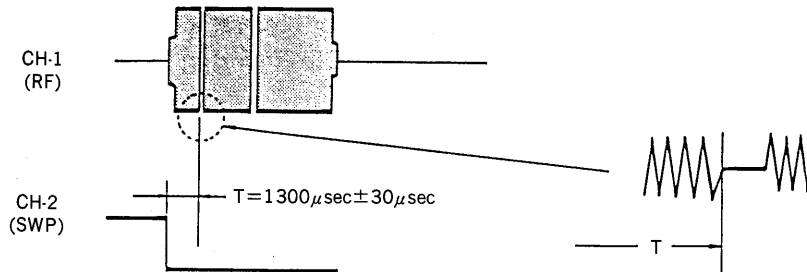
# SECTION 2
# BLOCK DIAGRAM
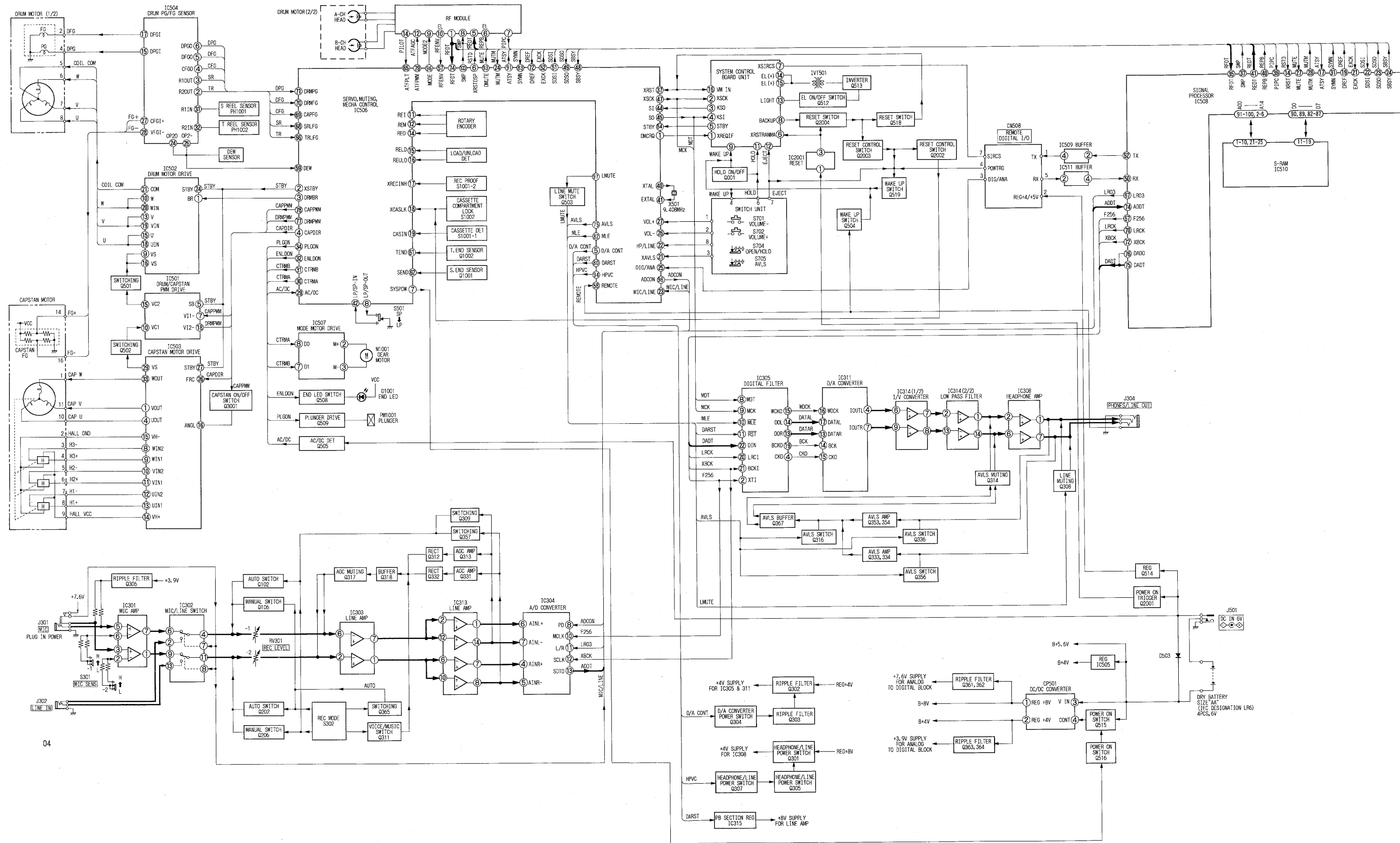
# TCD-D7/D7K

## SONY®
# SERVICE MANUAL

US *Model*
Canadian *Model*
AEP *Model*
TCD-D7

Tourist *Model*
TCD-D7K

## SUPPLEMENT-2

File this supplement with the Service Manual.

We inform the user that according to change of the suffix of the printed wiring board, the printed wiring board and schematic diagram have been changed.

# TCD-D7/D7K

● Semiconductor Location

PRINTED WIRING BOARDS

| Ref. No. | Location | Ref. No. | Location |
|---|---|---|---|
| D102 | C-3 | Q202 | F-26 |
| D103 | E-2 | Q206 | F-26 |
| D104 | E-26 | Q301 | G-4 |
| D202 | C-3 | Q302 | E-24 |
| D203 | F-26 | Q303 | F-24 |
| D204 | E-26 | Q304 | F-24 |
| D301 | C-27 | Q305 | G-5 |
| D303 | F-5 | Q306 | J-2 |
| D331 | F-25 | Q307 | G-5 |
| D332 | C-24 | Q308 | C-2 |
| D340 | F-24 | Q309 | G-4 |
| D341 | C-25 | Q311 | F-3 |
| D501 | H-20 | Q312 | F-24 |
| D502 | H-19 | Q313 | G-4 |
| D503 | I-19 | Q314 | C-4 |
| D505 | D-5 | Q316 | C-24 |
| D506 | D-10 | Q317 | F-3 |
| D507 | D-9 | Q318 | F-3 |
| D508 | D-9 | Q331 | F-25 |
| D509 | C-9 | Q332 | F-25 |
| D510 | C-9 | Q333 | C-25 |
| D511 | E-10 | Q334 | C-24 |
| D512 | D-8 | Q353 | C-24 |
| D515 | D-7 | Q354 | C-25 |
| D516 | D-7 | Q355 | D-25 |
| D517 | D-6 | Q356 | D-25 |
| D518 | C-7 | Q357 | F-25 |
| D1001 | H-13 | Q361 | F-25 |
| | | Q362 | E-24 |
| IC301 | H-26 | Q363 | J-3 |
| IC302 | E-27 | Q364 | F-2 |
| IC303 | H-25 | Q365 | F-2 |
| IC304 | H-24 | Q366 | C-5 |
| IC305 | C-22 | Q367 | F-4 |
| IC308 | D-26 | Q368 | F-5 |
| IC311 | C-23 | Q501 | H-20 |
| IC313 | H-4 | Q502 | H-19 |
| IC314 | D-24 | Q503 | F-7 |
| IC315 | E-25 | Q504 | D-8 |
| IC501 | G-19 | Q505 | D-7 |
| IC502 | G-7 | Q508 | J-6 |
| IC503 | H-23 | Q509 | I-6 |
| IC504 | G-8 | Q512 | C-16 |
| IC505 | F-8 | Q513 | A-19 |
| IC506 | E-22 | Q514 | F-9 |
| IC507 | H-21 | Q515 | D-17 |
| IC508 | D-20 | Q516 | D-18 |
| IC509 | E-19 | Q517 | I-23 |
| IC510 | D-8 | Q518 | I-23 |
| IC511 | E-9 | Q519 | C-8 |
| IC2001 | H-22 | Q1001 | I-11 |
| | | Q1002 | I-14 |
| Q102 | E-27 | Q2001 | G-22 |
| Q106 | F-26 | Q3001 | G-22 |

Note :
● : parts extracted from the conductor side.
○ : parts mounted on the conductor side.
▓ : Pattern on the side which is seen.
○ : Pattern on the rear side.

【MAIN BOARD】(COMPONENT SIDE)

【MAIN BOARD】(CONDUCTOR SIDE)

【TRANSFORMER BOARD】

SWITCH UNIT

【AT-5 BOARD】

【FLEXIBLE BOARD】(COMPONENT SIDE)

【FLEXIBLE BOARD】(CONDUCTOR SIDE)

DRUM MOTOR

SYSTEM CONTROL BOARD UNIT

RF MODULE

CAPSTAN MOTOR

—7— —8— —9— —10—

SCHEMATIC DIAGRAM—ANALOG SECTION—



【MAIN BOARD】(2/2)

Note :
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.

- ⊡ : B+ Line
- Power voltage is dc 6V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark : PLAY
- ( ) : REC
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  - ▷ : PB
  - ▷▷ : REC

**TCD-D7/D7K**

Note :
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- % : indicates tolerance.

⎓ : B+ Line
- Power voltage is dc 6V and fed with regulated dc power supply from battery terminal.
- Voltage and waveforms are dc with respect to ground under no-signal conditions.
- no mark: PLAY
- ( ): REC

- Voltages are taken with a VOM (input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.

- Signal path.
  ▷ : PB
  ▷ : REC

SCHEMATIC DIAGRAM—MAIN SECTION—



[MAIN BOARD](1/2)
DRUM MOTOR(2/2)
RF MODULE
TO MAIN BOARD(2/2)
DRUM MOTOR(1/2)
CAPSTAN MOTOR

IC504 DRUM PG/FG SENSOR
IC502 DRUM MOTOR DRIVE
IC501 DRUM/CAPSTAN PWM DRIVE
IC503 CAPSTAN MOTOR DRIVE
IC505 REG
IC506 CXP80521-078BR SERVO, MUTING, MECHA CONTROL
IC510 S-RAM
IC508 CXD2459R SIGNAL PROCESSOR DIGITAL I/O
IC509
IC511 BUFFER

Q503 LINE MUTE SWITCH
Q501,502 SWITCHING
Q504,519 WAKE UP SWITCH
Q505 AC/DC DET
Q515,516 POWER ON SWITCH
Q517,518 RESET SWITCH
Q512 EL ON/OFF SWITCH
Q508 END LED SWITCH
Q509 PLUNGER DRIVE
Q514 REG

[TRANSFORMER BOARD]
INVERTER
ELECTRIC LUMINESCENCE DEVICE
SYSTEM CONTROL BOARD UNIT
LIQUID CRYSTAL DISPLAY PANEL
SWITCH UNIT

[AT-5 BOARD]
DRY BATTERY SIZE "AA" (IEC DESIGNATION R6) 4PCS,6V
DC/DC CONVERTER
Q2001 POWER ON TRIGGER
IC2001 RESET
Q514 REG
IC507 TK10562 MODE MOTOR DRIVE
[FLEXIBLE BOARD]
REW SENSOR
ROTARY ENCODER

9905 CLOCK SET
9906 COUNTER
9907 RESET +

-15-      -16-      -17-      -18-

## ELECTRICAL PARTS LIST

NOTE:
- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:$\mu$, for example:
  uA ..: $\mu$A..    uPA..: $\mu$PA..
  uPB..: $\mu$PB..   uPC..: $\mu$PC..   uPD..: $\mu$PD..
- CAPACITORS
  uF: $\mu$F
- COILS
  uH: $\mu$H

When indicating parts by reference number, please include the board.

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| * | 1-648-722-11 | AT-5 BOARD | | | |
| | | ********** | | | |
| | | < CAPACITOR > | | | |
| C700 | 1-104-964-21 | ELECT | 470uF | 20% | 10V |
| | | ********************************************************** | | | |
| | A-3016-354-A | MAIN BOARD, COMPLETE | | | |
| | | (INCLUDING TRANSFORMER BOARD) | | | |
| | | ******************** | | | |
| | 3-387-477-01 | TERMINAL (MAIN), BATTERY | | | |
| | 3-708-377-01 | SLIDER, SURF LOCK (16P) | | | |
| | 3-831-441-XX | SPACER | | | |
| | | < CAPACITOR > | | | |
| C001 | 1-164-222-11 | CERAMIC CHIP | 0.22uF | | 25V |
| C002 | 1-164-222-11 | CERAMIC CHIP | 0.22uF | | 25V |
| C101 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C102 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C103 | 1-128-019-11 | ELECT CHIP | 6.8uF | | 6.3V |
| C105 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C106 | 1-128-020-11 | ELECT CHIP | 10uF | | 6.3V |
| C107 | 1-162-922-11 | CERAMIC CHIP | 39PF | 5% | 50V |
| C108 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C109 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C110 | 1-135-180-21 | TANTALUM CHIP | 3.3uF | 20% | 6.3V |
| C113 | 1-164-161-11 | CERAMIC CHIP | 0.0022uF | 10% | 100V |
| C117 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C118 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C119 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C120 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C121 | 1-164-480-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C122 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C125 | 1-135-202-21 | TANTAL. CHIP | 22uF | 20% | 4V |
| C126 | 1-104-847-11 | TANTAL. CHIP | 22uF | 20% | 4V |
| C128 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C129 | 1-163-022-00 | CERAMIC CHIP | 0.012uF | 10% | 50V |
| C131 | 1-128-014-11 | ELECT CHIP | 10uF | | 4V |
| C134 | 1-104-848-11 | TANTAL. CHIP | 100uF | 20% | 4V |
| C135 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C201 | 1-135-181-21 | TANTALUM CHIP | 4.7uF | 20% | 6.3V |
| C202 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C203 | 1-128-019-11 | ELECT CHIP | 6.8uF | | 6.3V |
| C205 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C206 | 1-128-020-11 | ELECT CHIP | 10uF | | 6.3V |
| C207 | 1-162-922-11 | CERAMIC CHIP | 39PF | 5% | 50V |
| C208 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C209 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C210 | 1-135-180-21 | TANTALUM CHIP | 3.3uF | 20% | 6.3V |
| C213 | 1-164-161-11 | CERAMIC CHIP | 0.0022uF | 10% | 100V |
| C217 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C218 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C219 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C220 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C221 | 1-164-480-11 | CERAMIC CHIP | 0.01uF | 10% | 50V |
| C222 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C225 | 1-135-202-21 | TANTAL. CHIP | 22uF | 20% | 4V |
| C226 | 1-104-847-11 | TANTAL. CHIP | 22uF | 20% | 4V |
| C228 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C229 | 1-163-022-00 | CERAMIC CHIP | 0.012uF | 10% | 50V |
| C231 | 1-128-014-11 | ELECT CHIP | 10uF | | 4V |
| C234 | 1-104-848-11 | TANTAL. CHIP | 100uF | 20% | 4V |
| C235 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C302 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C303 | 1-135-149-21 | TANTALUM CHIP | 2.2uF | 20% | 10V |
| C304 | 1-135-149-21 | TANTALUM CHIP | 2.2uF | 20% | 10V |
| C305 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C306 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V |
| C307 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C308 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C309 | 1-162-638-11 | CERAMIC CHIP | 1uF | | 16V |
| C310 | 1-124-778-00 | ELECT CHIP | 22uF | 20% | 6.3V |
| C311 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C312 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C313 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C314 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C318 | 1-124-779-00 | ELECT CHIP | 10uF | 20% | 16V |
| C319 | 1-126-395-11 | ELECT | 22uF | 20% | 16V |
| C320 | 1-216-845-11 | METAL CHIP | 100K 5% | | 1/16W |
| C322 | 1-124-778-00 | ELECT CHIP | 22uF | 20% | 6.3V |

| Ref.No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C323 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C324 | 1-124-778-00 | ELECT CHIP | 22uF | 20% | 6.3V |
| C327 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C330 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C331 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C332 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C333 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C334 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C335-337 | | | | | |
| | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C338 | 1-135-210-11 | TANTALUM CHIP | 4.7uF | 20% | 10V |
| C339 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C340 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C341 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C342 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C343 | 1-104-847-11 | TANTAL. CHIP | 22uF | 20% | 4V |
| C346 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C347 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C348 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C349 | 1-128-014-11 | ELECT CHIP | 10uF | | 4V |
| C361 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C362 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C363 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C364 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C365 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C366 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C367 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C368 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C369 | 1-104-847-11 | TANTAL. CHIP | 22uF | 20% | 4V |
| C370 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C371 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C372 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C373 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C375 | 1-135-157-21 | TANTALUM CHIP | 10uF | 20% | 6.3V |
| C377 | 1-135-201-11 | TANTALUM CHIP | 10uF | 20% | 4V |
| C501 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C502 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C503 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C504 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C505 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C506 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C507 | 1-162-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C508 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C509 | 1-162-962-11 | CERAMIC CHIP | 470PF | 10% | 50V |
| C510 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C511 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C513 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C514 | 1-162-967-11 | CERAMIC CHIP | 0.0033uF | 10% | 50V |
| C517 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |

| Ref.No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C518 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C519 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C521-523 | | | | | |
| | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C524 | 1-162-927-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C525 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C526 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C528 | 1-162-960-11 | CERAMIC CHIP | 220PF | 10% | 50V |
| C529 | 1-162-960-11 | CERAMIC CHIP | 220PF | 10% | 50V |
| C530 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C532 | 1-162-966-11 | CERAMIC CHIP | 0.0022uF | 10% | 50V |
| C533 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C534 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C535 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C536 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C537 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C538 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C539 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C540 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 10V |
| C541 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C542 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C543 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C544 | 1-135-091-00 | TANTALUM CHIP | 1uF | 20% | 16V |
| C545 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C546 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C547 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C549-552 | | | | | |
| | 1-127-558-11 | ELECT(SOLID) | 10uF | 20% | 10V |
| C553 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 10V |
| C554 | 1-127-558-11 | ELECT(SOLID) | 10uF | 20% | 10V |
| C557-559 | | | | | |
| | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C560 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C561 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C562 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C563 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C564 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C565 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C566 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C567 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C568 | 1-164-227-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C569-571 | | | | | |
| | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C572 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C573 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C574 | 1-162-917-11 | CERAMIC CHIP | 15PF | 5% | 50V |
| C575 | 1-162-917-11 | CERAMIC CHIP | 15PF | 5% | 50V |
| C576 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 10V |
| C577 | 1-135-148-21 | TANTAL. CHIP | 1.5uF | 20% | 10V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C578 | 1-162-967-11 | CERAMIC CHIP | 0.0033uF | 10% | 50V |
| C579 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C580 | 1-162-967-11 | CERAMIC CHIP | 0.0033uF | 10% | 50V |
| C581 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C582 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C583 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C584 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C586 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C587 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C588 | 1-104-755-21 | ELECT | 68uF | 20% | 6.3V |
| C591 | 1-162-917-11 | CERAMIC CHIP | 15PF | 5% | 50V |
| C592 | 1-162-910-11 | CERAMIC CHIP | 5PF | 0.25PF | 50V |
| C593 | 1-162-910-11 | CERAMIC CHIP | 5PF | 0.25PF | 50V |
| C594 | 1-162-917-11 | CERAMIC CHIP | 15PF | 5% | 50V |
| C595 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C596 | 1-162-915-11 | CERAMIC CHIP | 10PF | 0.5PF | 50V |
| C597 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C598 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C599 | 1-135-259-11 | TANTAL. CHIP | 10uF | 20% | 6.3V |
| C600 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C601 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C602 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C605 | 1-104-851-11 | TANTAL. CHIP | 10uF | 20% | 10V |
| C606 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C608 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C609 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C610 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C611 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C613 | 1-162-966-11 | CERAMIC CHIP | 0.0022uF | 10% | 50V |
| C614 | 1-162-966-11 | CERAMIC CHIP | 0.0022uF | 10% | 50V |
| C615 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C616 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| C617 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C618 | 1-162-923-11 | CERAMIC CHIP | 47PF | 5% | 50V |
| C620 | 1-162-966-11 | CERAMIC CHIP | 0.0022uF | 10% | 50V |
| C621 | 1-162-979-11 | CERAMIC CHIP | 0.0027uF | 10% | 50V |
| C622 | 1-162-953-11 | CERAMIC CHIP | 100PF | 5% | 50V |
| C624 | 1-162-970-11 | CERAMIC CHIP | 0.01uF | 10% | 25V |
| C627 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C1000 | 1-104-852-11 | TANTAL. CHIP | 22uF | 20% | 6.3V |
| C1002 | 1-162-638-11 | CERAMIC CHIP | 1uF | | 16V |
| C2001 | 1-162-964-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C2002 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C2004 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C2005 | 1-135-179-21 | TANTAL. CHIP | 2.2uF | 20% | 16V |
| C2008 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C2009 | 1-162-968-11 | CERAMIC CHIP | 0.0047uF | 10% | 50V |
| C3001 | 1-135-148-21 | TANTALUM CHIP | 1.5uF | 20% | 10V |
| C3002 | 1-135-149-21 | TANTALUM CHIP | 2.2uF | 20% | 10V |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < CONNECTOR > | |
| CN501 | 1-750-374-11 | CONNECTOR, FPC 14P | |
| * CN502 | 1-691-419-11 | HOUSING, CONNECTOR 8P | |
| CN504 | 1-569-530-11 | HOUSING, CONNECTOR 16P | |
| * CN505 | 1-691-798-11 | HOUSING, CONNECTOR 22P | |
| CN507 | 1-750-375-11 | CONNECTOR, FPC 22P | |
| CN508 | 1-750-377-11 | SOCKET, CONNECTOR 7P (REMOTE DIGITAL I/O) | |
| CN509 | 1-750-373-11 | CONNECTOR, FPC 8P | |
| | | < DC-DC CONVERTER UNIT > | |
| CP501 | 1-467-045-11 | CONVERTER UNIT, DC-DC | |
| | | < DIODE > | |
| D102-104 | | | |
| | 8-719-033-14 | LED    CL-170PG-CD-T | |
| D202-204 | | | |
| | 8-719-033-14 | LED    CL-170PG-CD-T | |
| D301 | 8-719-105-58 | DIODE    RD3.9M-B2 | |
| D303 | 8-719-975-43 | DIODE    RB420D | |
| D331 | 8-719-975-43 | DIODE    RB420D | |
| D332 | 8-719-975-43 | DIODE    RB420D | |
| D340 | 8-719-975-43 | DIODE    RB420D | |
| D341 | 8-719-975-43 | DIODE    RB420D | |
| D501-503 | | | |
| | 8-719-980-38 | DIODE    SB07-03C | |
| D505 | 8-719-404-16 | DIODE    MA713 | |
| D506-509 | | | |
| | 8-719-800-76 | DIODE    1SS226 | |
| D510 | 8-719-026-26 | DIODE    MA786WK | |
| D511 | 8-719-105-91 | DIODE    RD5.6M-B2 | |
| D512 | 8-719-404-35 | DIODE    MA141WK | |
| D515 | 8-719-820-05 | DIODE    1SS181 | |
| D516 | 8-719-820-05 | DIODE    1SS181 | |
| D517 | 8-719-989-73 | DIODE    SB007T03C | |
| D518 | 8-719-404-35 | DIODE    MA141WK | |
| | | < IC > | |
| IC301 | 8-759-745-64 | IC    NJM4560M | |
| IC302 | 8-759-161-76 | IC    TK15021MTL | |
| IC303 | 8-759-097-92 | IC    NJM2100V | |
| IC304 | 8-759-161-74 | IC    AK5344-VS-E1 | |
| IC305 | 8-759-501-41 | IC    SM5840BS | |
| IC308 | 8-759-058-41 | IC    NJM3416V | |
| IC311 | 8-759-178-39 | IC    PCM69AU-J-T1 | |
| IC313 | 8-759-097-92 | IC    NJM2100V | |
| IC314 | 8-759-161-75 | IC    NJM2112V(TE2) | |
| IC315 | 8-759-168-90 | IC    TK11245TL | |
| IC501 | 8-759-094-01 | IC    MB3796PFV-G-BND-ER | |

| Ref. No. | Part No. | Description | | Remark | Ref. No. | Part No. | Description | | Remark |
|---|---|---|---|---|---|---|---|---|---|
| IC502 | 8-759-094-02 | IC | CXA8022N | | Q303 | 8-729-402-19 | TRANSISTOR | XN6501 | |
| IC503 | 8-759-164-58 | IC | MCDO02BM-TLM | | Q304 | 8-729-402-93 | TRANSISTOR | UN5214 | |
| IC504 | 8-759-159-76 | IC | MM1138XQ | | Q305 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | |
| IC505 | 8-759-168-66 | IC | RH5RE40AA-T1 | | Q306 | 8-729-159-65 | TRANSISTOR | 2SD596-DV5 | |
| IC506 | 8-752-843-07 | IC | CXP80524-078R | | Q307 | 8-729-900-52 | TRANSISTOR | DTC114YK | |
| | | | | | | | | | |
| IC507 | 8-759-159-77 | IC | TK10502MT1 | | Q308 | 8-729-425-18 | TRANSISTOR | XN4504 | |
| IC508 | 8-752-352-24 | IC | CXD2605R | | Q309 | 8-729-402-93 | TRANSISTOR | UN5214 | |
| IC509 | 8-759-031-84 | IC | SC7S04F | | Q311 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | |
| IC510 | 8-752-343-47 | IC | CXK58257ATM-12LB | | Q312 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | |
| IC511 | 8-759-031-84 | IC | SC7S04F | | Q313 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | |
| | | | | | | | | | |
| IC2001 | 8-759-178-44 | IC | RN5VL33AA-T1 | | Q314 | 8-729-402-19 | TRANSISTOR | XN6501 | |
| | | | | | Q316 | 8-729-402-93 | TRANSISTOR | UN5214 | |
| | | < JACK > | | | Q317 | 8-729-427-83 | TRANSISTOR | XP6501 | |
| | | | | | Q318 | 8-729-427-83 | TRANSISTOR | XP6501 | |
| J301 | 1-750-369-11 | JACK (MIC) | | | Q331 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | |
| J302 | 1-750-370-11 | JACK (LINE IN) | | | | | | | |
| J304 | 1-750-372-11 | JACK (PHONES/LINE OUT) | | | Q332 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | |
| J501 | 1-750-368-11 | JACK, DC (POLARITY UNIFIED TYPE) | | | Q333 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | |
| | | (DC IN 6V) | | | Q334 | 8-729-230-60 | TRANSISTOR | 2SA1586-YG | |
| | | | | | Q353 | 8-729-230-60 | TRANSISTOR | 2SA1586-YG | |
| | | < COIL > | | | Q354 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | |
| | | | | | | | | | |
| L101-103 | | | | | Q355-357 | | | | |
| | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | | 8-729-402-93 | TRANSISTOR | UN5214 | |
| L201-203 | | | | | Q361 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | |
| | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | Q362 | 8-729-402-19 | TRANSISTOR | XN6501 | |
| L301 | 1-412-006-31 | INDUCTOR CHIP | 10uH | | Q363 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | |
| L305 | 1-410-999-11 | INDUCTOR CHIP | 3.3uH | | Q364 | 8-729-402-19 | TRANSISTOR | XN6501 | |
| L307 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | | | | | |
| | | | | | Q365 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | |
| L391 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | Q366 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | |
| L501 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | Q367 | 8-729-427-83 | TRANSISTOR | XP6501 | |
| L502 | 1-412-002-31 | INDUCTOR CHIP | 4.7uH | | Q368 | 8-729-425-44 | TRANSISTOR | XP4315 | |
| L503 | 1-412-002-31 | INDUCTOR CHIP | 4.7uH | | Q501 | 8-729-820-86 | TRANSISTOR | 2SB1121-ST | |
| L504 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | | | | | |
| | | | | | Q502 | 8-729-820-86 | TRANSISTOR | 2SB1121-ST | |
| L505 | 1-424-213-11 | INDUCTOR | 100uH | | Q503 | 8-729-422-18 | TRANSISTOR | XN4315 | |
| L506 | 1-414-214-11 | INDUCTOR | 200uH | | Q504 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | |
| L507 | 1-412-006-31 | INDUCTOR CHIP | 10uH | | Q505 | 8-729-015-76 | TRANSISTOR | UN5211 | |
| L508 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | Q508 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | |
| L509 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | | | | | |
| | | | | | Q509 | 8-729-230-49 | TRANSISTOR | 2SC2712-YG | |
| L510 | 1-410-196-11 | INDUCTOR CHIP | 2.2uH | | Q512 | 8-729-015-74 | TRANSISTOR | UN5111 | |
| L511 | 1-216-295-00 | METAL CHIP | 0    5%    1/10W | | Q514 | 8-729-140-75 | TRANSISTOR | 2SD999-CLCK | |
| L512 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | Q515 | 8-729-805-26 | TRANSISTOR | 2SB1121-T | |
| L1001 | 1-410-997-31 | INDUCTOR CHIP | 2.2uH | | Q516 | 8-729-402-45 | TRANSISTOR | UN5212 | |
| | | | | | | | | | |
| | | < TRANSISTOR > | | | Q517 | 8-729-402-96 | TRANSISTOR | UN5114 | |
| | | | | | Q518 | 8-729-924-62 | TRANSISTOR | DTC113ZU | |
| Q102 | 8-729-400-55 | TRANSISTOR | 2SD1328-S | | Q519 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | |
| Q106 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | Q2001 | 8-729-402-45 | TRANSISTOR | UN5212 | |
| Q202 | 8-729-400-55 | TRANSISTOR | 2SD1328-S | | Q3001 | 8-729-420-50 | TRANSISTOR | UN5215 | |
| Q206 | 8-729-402-32 | TRANSISTOR | 2SD1819A-R | | | | | | |
| Q301 | 8-729-141-48 | TRANSISTOR | 2SB624-BV345 | | | | | | |
| | | | | | | | | | |
| Q302 | 8-729-216-22 | TRANSISTOR | 2SA1162-G | | | | | | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| | | < RESISTOR > | | | |
| R101 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R102 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R103 | 1-218-740-11 | METAL CHIP | 100K | 0.50% | 1/16W |
| R104 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R105 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R106 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R108 | 1-218-724-11 | METAL CHIP | 22K | 0.50% | 1/16W |
| R109 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R110 | 1-218-873-11 | METAL CHIP | 12K | 0.50% | 1/16W |
| R111 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R113 | 1-218-736-11 | METAL CHIP | 68K | 0.50% | 1/16W |
| R115 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R116 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R120 | 1-218-694-91 | METAL CHIP | 1.2K | 0.50% | 1/16W |
| R121 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R122 | 1-218-672-11 | METAL CHIP | 150 | 0.50% | 1/16W |
| R123 | 1-218-672-11 | METAL CHIP | 150 | 0.50% | 1/16W |
| R127 | 1-216-804-11 | METAL CHIP | 39 | 5% | 1/16W |
| R129 | 1-218-724-11 | METAL CHIP | 22K | 0.50% | 1/16W |
| R130 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R132 | 1-216-802-11 | METAL GLAZE | 27 | 5% | 1/16W |
| R133 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |
| R136 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R137 | 1-218-295-11 | METAL CHIP | 5.6K | 0.50% | 1/16W |
| R138 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R140 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R151 | 1-218-670-11 | METAL CHIP | 120 | 0.50% | 1/16W |
| R152 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R153 | 1-218-484-11 | METAL CHIP | 750 | 0.50% | 1/16W |
| R155 | 1-218-695-11 | METAL CHIP | 1.3K | 0.50% | 1/16W |
| R156 | 1-216-804-11 | METAL CHIP | 39 | 5% | 1/16W |
| R157 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R158 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R159 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R160 | 1-218-700-11 | METAL CHIP | 2.2K | 0.50% | 1/16W |
| R162 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R164 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R173 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R174 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R177 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R178 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R179 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R180 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R181 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R201 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R202 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R203 | 1-218-740-11 | METAL CHIP | 100K | 0.50% | 1/16W |
| R204 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R205 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R206 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R208 | 1-218-724-11 | METAL CHIP | 22K | 0.50% | 1/16W |
| R209 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R210 | 1-218-873-11 | METAL CHIP | 12K | 0.50% | 1/16W |
| R211 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R213 | 1-218-736-11 | METAL CHIP | 68K | 0.50% | 1/16W |
| R215 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R216 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R220 | 1-218-694-11 | METAL CHIP | 1.2K | 0.50% | 1/16W |
| R221 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R222 | 1-218-672-11 | METAL CHIP | 150 | 0.50% | 1/16W |
| R223 | 1-218-672-11 | METAL CHIP | 150 | 0.50% | 1/16W |
| R227 | 1-216-804-11 | METAL CHIP | 39 | 5% | 1/16W |
| R229 | 1-218-724-11 | METAL CHIP | 22K | 0.50% | 1/16W |
| R230 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R232 | 1-216-802-11 | METAL GLAZE | 27 | 5% | 1/16W |
| R233 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |
| R236 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R237 | 1-218-295-11 | METAL CHIP | 5.6K | 0.50% | 1/16W |
| R238 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R240 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R251 | 1-218-670-11 | METAL CHIP | 120 | 0.50% | 1/16W |
| R252 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R253 | 1-218-484-11 | METAL CHIP | 750 | 0.50% | 1/16W |
| R255 | 1-218-695-11 | METAL CHIP | 1.3K | 0.50% | 1/16W |
| R256 | 1-216-804-11 | METAL CHIP | 39 | 5% | 1/16W |
| R257 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R258 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R259 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R260 | 1-218-700-11 | METAL CHIP | 2.2K | 0.50% | 1/16W |
| R262 | 1-218-716-11 | METAL CHIP | 10K | 0.50% | 1/16W |
| R264 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R273 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R274 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R277 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R278 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R279 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R280 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R281 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R301 | 1-216-815-11 | METAL CHIP | 330 | 5% | 1/16W |
| R304 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R305 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R306 | 1-216-853-11 | METAL CHIP | 470K | 5% | 1/16W |
| R307 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R308 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R309 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R310 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R312 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R313 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R314 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R315 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R316 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R317 | 1-216-851-11 | METAL CHIP | 330K | 5% | 1/16W |
| R318 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R319 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R320 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R321 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R322 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R323 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R327 | 1-164-156-11 | CERAMIC CHIP | 0.1uF | | 25V |
| R330 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R331 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R332 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R334 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R336 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R337 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W |
| R338 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R342 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R343 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |
| R344 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R351 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R352 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R353 | 1-216-863-11 | METAL GLAZE | 3.3M | 5% | 1/16W |
| R355 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R356 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R357 | 1-216-863-11 | METAL GLAZE | 3.3M | 5% | 1/16W |
| R358 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R359 | 1-216-857-11 | METAL CHIP | 1M | 5% | 1/16W |
| R360 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R361 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R365 | 1-216-001-00 | METAL CHIP | 10 | 5% | 1/10W |
| R366 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R371 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R372 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R373 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R374 | 1-216-827-11 | METAL CHIP | 3.3K | 5% | 1/16W |
| R375 | 1-216-857-11 | METAL CHIP | 1M | 5% | 1/16W |
| R376 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R377 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R378 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R379 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R380 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |
| R381 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R382 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R383 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R384 | 1-216-848-11 | METAL CHIP | 180K | 5% | 1/16W |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R385 | 1-216-823-11 | METAL CHIP | 1.5K | 5% | 1/16W |
| R386 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R387 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R389 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R390 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R392-395 | | | | | |
| | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R396 | 1-218-295-11 | METAL CHIP | 5.6K | 0.50% | 1/16W |
| R397 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R398 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R399 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R400 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R401 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R402 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R501 | 1-216-794-11 | METAL CHIP | 5.6 | 5% | 1/16W |
| R502 | 1-216-828-11 | METAL CHIP | 3.9K | 5% | 1/16W |
| R503 | 1-216-813-11 | METAL CHIP | 220 | 5% | 1/16W |
| R504 | 1-216-830-11 | METAL CHIP | 5.6K | 5% | 1/16W |
| R505 | 1-216-794-11 | METAL CHIP | 5.6 | 5% | 1/16W |
| R506 | 1-216-794-11 | METAL CHIP | 5.6 | 5% | 1/16W |
| R508 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R509 | 1-216-811-11 | METAL CHIP | 150 | 5% | 1/16W |
| R510 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R511 | 1-216-840-11 | METAL CHIP | 39K | 5% | 1/16W |
| R512-514 | | | | | |
| | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R516 | 1-216-023-00 | METAL CHIP | 82 | 5% | 1/10W |
| R517 | 1-216-813-11 | METAL CHIP | 220 | 5% | 1/16W |
| R518 | 1-217-806-11 | METAL GLAZE | 1 | 5% | 1/8W |
| R519 | 1-217-806-11 | METAL GLAZE | 1 | 5% | 1/8W |
| R520 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R521 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R522 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R523 | 1-216-832-11 | METAL CHIP | 8.2K | 5% | 1/16W |
| R524 | 1-216-828-11 | METAL CHIP | 3.9K | 5% | 1/16W |
| R525 | 1-216-844-11 | METAL CHIP | 82K | 5% | 1/16W |
| R526 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R527 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R528 | 1-216-826-11 | METAL CHIP | 2.7K | 5% | 1/16W |
| R529 | 1-218-734-11 | METAL CHIP | 56K | 0.50% | 1/16W |
| R530 | 1-216-826-11 | METAL CHIP | 2.7K | 5% | 1/16W |
| R531 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R533 | 1-218-748-11 | METAL CHIP | 220K | 0.50% | 1/16W |
| R534 | 1-218-748-11 | METAL CHIP | 220K | 0.50% | 1/16W |
| R535-539 | | | | | |
| | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R540-542 | | | | | |
| | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R544 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |

| Ref. No. | Part No. | Description | | | Remark |
|----------|----------|-------------|------|------|--------|
| R545 | 1-216-801-11 | METAL CHIP | 22 | 5% | 1/16W |
| R546 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R547 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R548 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R549 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| | | | | | |
| R550 | 1-216-174-00 | METAL GLAZE | 100 | 5% | 1/8W |
| R551 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| R552 | 1-216-834-11 | METAL CHIP | 12K | 5% | 1/16W |
| R553 | 1-218-676-11 | METAL CHIP | 220 | 0.50% | 1/16W |
| R554 | 1-216-839-11 | METAL CHIP | 33K | 5% | 1/16W |
| | | | | | |
| R555 | 1-216-811-11 | METAL CHIP | 150 | 5% | 1/16W |
| R556 | 1-216-818-11 | METAL CHIP | 560 | 5% | 1/16W |
| R557 | 1-216-818-11 | METAL CHIP | 560 | 5% | 1/16W |
| R558 | 1-218-676-11 | METAL CHIP | 220 | 0.50% | 1/16W |
| R559 | 1-218-740-11 | METAL CHIP | 100K | 0.50% | 1/16W |
| | | | | | |
| R560 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R561 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R564 | 1-216-864-11 | METAL CHIP | 0 | 5% | 1/16W |
| R565 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R566 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| | | | | | |
| R567 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R568 | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R569 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R570-572 | | | | | |
| | 1-216-809-11 | METAL CHIP | 100 | 5% | 1/16W |
| R573 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| | | | | | |
| R574 | 1-216-817-11 | METAL CHIP | 470 | 5% | 1/16W |
| R575 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R576 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R577 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R578 | 1-216-842-11 | METAL CHIP | 56K | 5% | 1/16W |
| | | | | | |
| R579 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/16W |
| R580 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/16W |
| R581 | 1-216-835-11 | METAL CHIP | 15K | 5% | 1/16W |
| R582 | 1-216-794-11 | METAL CHIP | 5.6 | 5% | 1/16W |
| R583 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| | | | | | |
| R584 | 1-216-825-11 | METAL CHIP | 2.2K | 5% | 1/16W |
| R585 | 1-218-873-11 | METAL CHIP | 12K | 0.50% | 1/16W |
| R586 | 1-218-732-11 | METAL CHIP | 47K | 0.50% | 1/16W |
| R587 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |
| R588 | 1-216-819-11 | METAL CHIP | 680 | 5% | 1/16W |
| | | | | | |
| R589 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R590 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R592 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R593 | 1-216-843-11 | METAL CHIP | 68K | 5% | 1/16W |
| R596-598 | | | | | |
| | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| | | | | | |
| R599 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R600 | 1-216-829-11 | METAL CHIP | 4.7K | 5% | 1/16W |

| Ref. No. | Part No. | Description | | | Remark |
|----------|----------|-------------|------|------|--------|
| R601 | 1-216-833-11 | METAL CHIP | 10K | 5% | 1/16W |
| R602 | 1-216-812-11 | METAL CHIP | 180 | 5% | 1/16W |
| R608 | 1-216-816-11 | METAL CHIP | 390 | 5% | 1/16W |
| R609 | 1-216-849-11 | METAL CHIP | 220K | 5% | 1/16W |
| R610 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| | | | | | |
| R611 | 1-216-838-11 | METAL CHIP | 27K | 5% | 1/16W |
| R614 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R2001 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| R2002 | 1-216-854-11 | METAL CHIP | 560K | 5% | 1/16W |
| R2003 | 1-216-845-11 | METAL CHIP | 100K | 5% | 1/16W |
| | | | | | |
| R2004 | 1-216-851-11 | METAL CHIP | 330K | 5% | 1/16W |
| R2005 | 1-216-844-11 | METAL CHIP | 82K | 5% | 1/16W |
| R3001 | 1-216-837-11 | METAL CHIP | 22K | 5% | 1/16W |
| R3002 | 1-216-841-11 | METAL CHIP | 47K | 5% | 1/16W |
| R3003 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |

< VARIABLE RESISTOR >

| RV301 | 1-223-361-11 | RES, VAR, CARBON 20K/20K (REC LEVEL) |
|-------|--------------|--------------------------------------|
| RV501 | 1-238-667-21 | RES, ADJ, CERMET 100K |

< SWITCH >

| S301 | 1-571-277-11 | SWITCH, SLIDE (MIC SENS) |
|------|--------------|--------------------------|
| S302 | 1-571-506-41 | SWITCH, SLIDE (REC MODE) |
| S501 | 1-571-275-31 | SWITCH, SLIDE (SP/LP) |

< VIBRATOR >

| X501 | 1-579-924-11 | VIBRATOR, CRYSTAL (CHIP TYPE) (9.408MHz) |
|------|--------------|-------------------------------------------|
| X502 | 1-579-924-11 | VIBRATOR, CRYSTAL (CHIP TYPE) (9.408MHz) |
| X503 | 1-579-923-11 | VIBRATOR, CRYSTAL (CHIP TYPE) (22.5792MHz) |
| X504 | 1-579-922-11 | VIBRATOR, CRYSTAL (CHIP TYPE) (24.576MHz) |

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**TCD-D7/D7K**

# TRANSFORMER

| Ref.No. | Part No. | Description | | | Remark |
|---------|----------|-------------|--|--|--------|

\*                TRANSFORMER BOARD
                     (SUPPLIED WITH MAIN BOARD, COMPLETE)
               *****************

               < CAPACITOR >

| C589 | 1-162-967-11 | CERAMIC CHIP | 0.0033uF | 10% | 50V |
| C590 | 1-164-234-11 | CERAMIC CHIP | 1uF | | 10V |
| C612 | 1-125-507-11 | DOUBLE LAYERS | 0.22F | | 5.5V |

               < TRANSFORMER >

| IVT501 | 1-423-601-11 | TRANSFORMER, OSCILLATION | | | |

               < TRANSISTOR >

| Q513 | 8-729-120-28 | TRANSISTOR | 2SC1623-L5L6 | | |

               < RESISTOR >

| R562 | 1-216-821-11 | METAL CHIP | 1K | 5% | 1/16W |
| R563 | 1-218-736-11 | METAL CHIP | 68K | 0.50% | 1/16W |